



# **Water Conditions Summary**

**Operations Control, Engineering & Vegetation  
Management Department**

**Operations & Maintenance Resource Area**

Governing Board Presentation

June 11, 2003

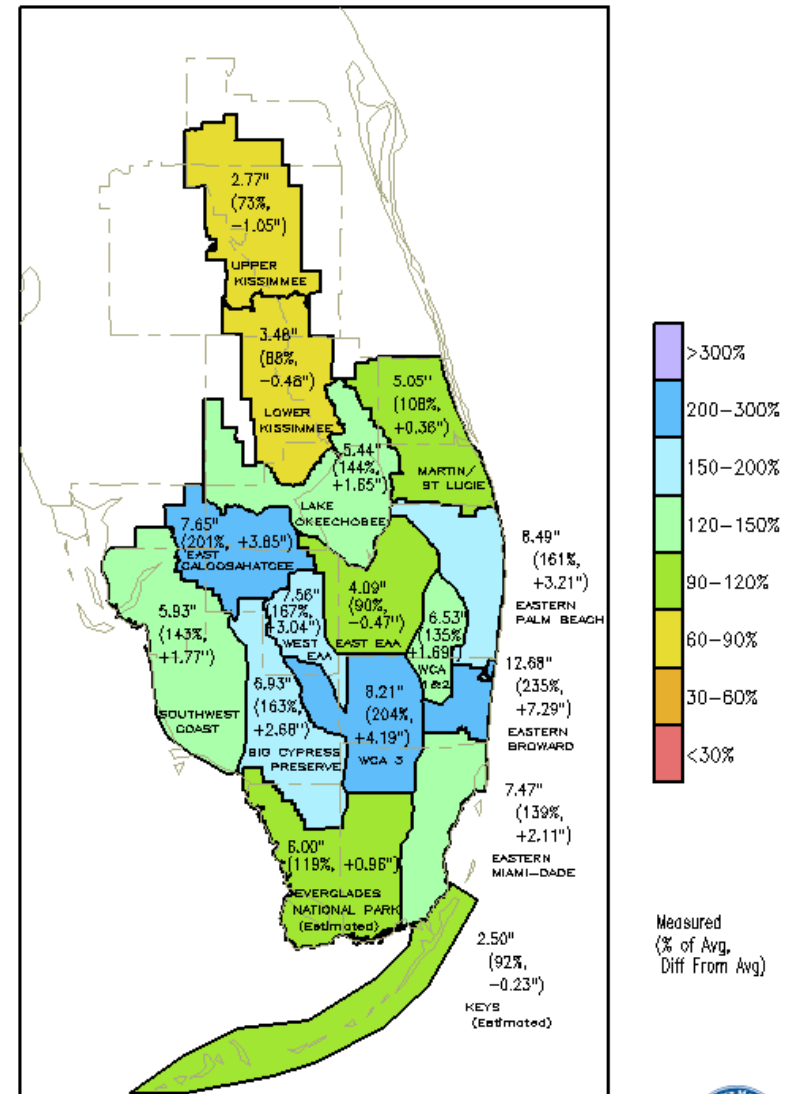
# Meteorological Conditions

# Meteorological Conditions

- With an early start to the wet season, District-wide rainfall in May was above average
- May Rainfall : District-wide rainfall was 139% of average
  - Normal Rainfall: 4.32 inches
  - Actual Rainfall: 5.98 inches
  - Est. Pan Evaporation: 6.3 inches
- June Rainfall : District-wide rainfall to-date is near average

SFWMD Rainfall  
02-may-2003 to 01-jun-2003

- Most areas of the District received average to above average rainfall in May
- Below average rainfall occurred in the Kissimmee basins



GRADS: COLA/IGES

Governing Board Presentation - June 11, 2003



# 2003 Hurricane Season Status



Category	Predicted	Average	2002
Named Storms	14	10	12
Hurricanes	8	6	4
Strong Hurricanes	3	2	2

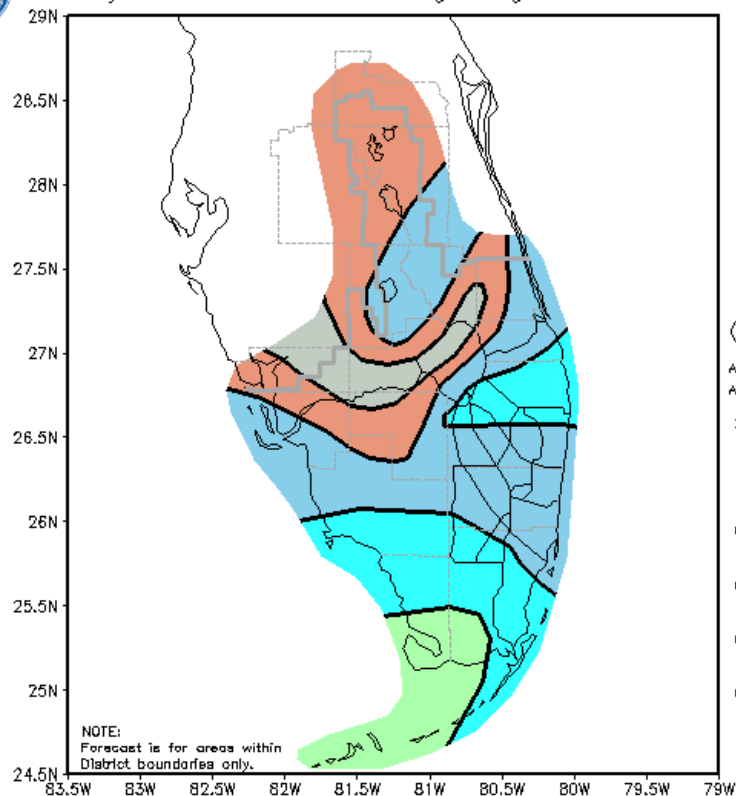
# May 27-28<sup>th</sup> Flood Event

# Storm Summary

- Wet period forecast on May 27<sup>th</sup>
- By mid-day of the 27<sup>th</sup>, radar returns indicated significant intensification of rainfall in Broward
- Structures in Broward & Miami-Dade were placed on their 'low-range' settings that afternoon
- Ft. Lauderdale Airport reported ~5 inches of rainfall in approximately one hour between 6pm & 7pm
- Miami Weather Service estimated the severity of the storm to be in the range of a 1-in-100 year event
- Hardest hit communities were located downstream of District water control structures
  - Also affected by normal high tides that afternoon
  - Some flooding of homes & businesses reported
- Canals returned to normal operations by the afternoon of the 29<sup>th</sup>



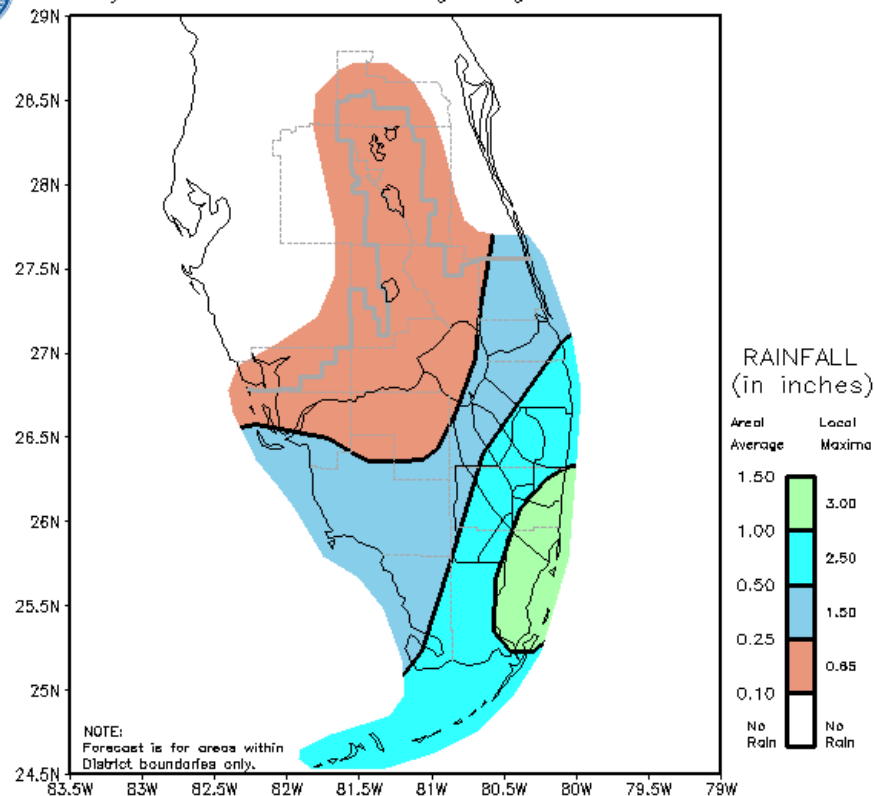
FWMD QUANTITATIVE PRECIPITATION FORECAST  
Day 1 24-Hour Period Beginning 7am EST TUE



ISSUED: Tue 27-May-2003 08:27 EDT

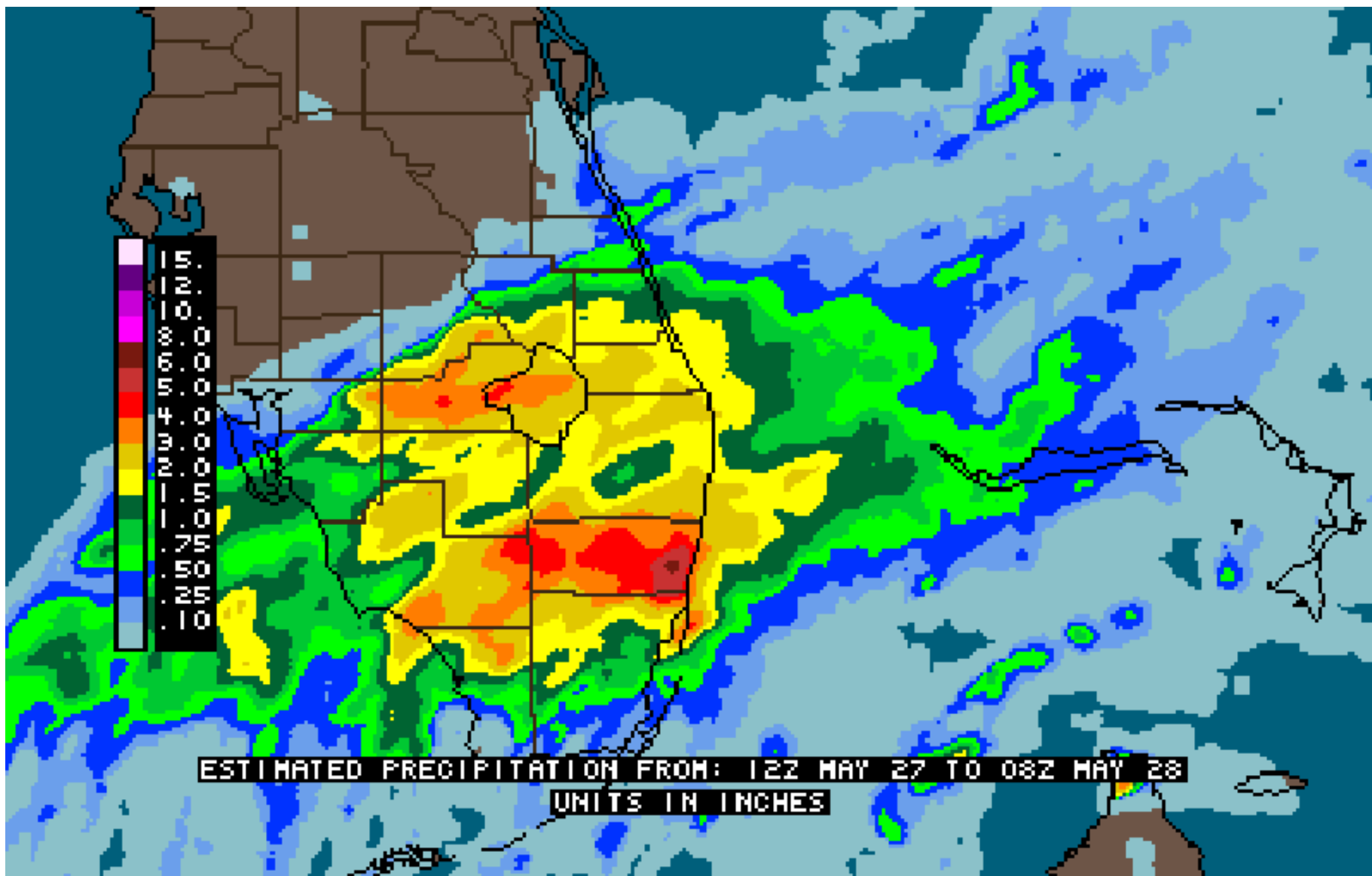


FWMD QUANTITATIVE PRECIPITATION FORECAST  
Day 2 24-Hour Period Beginning 7am EST WED



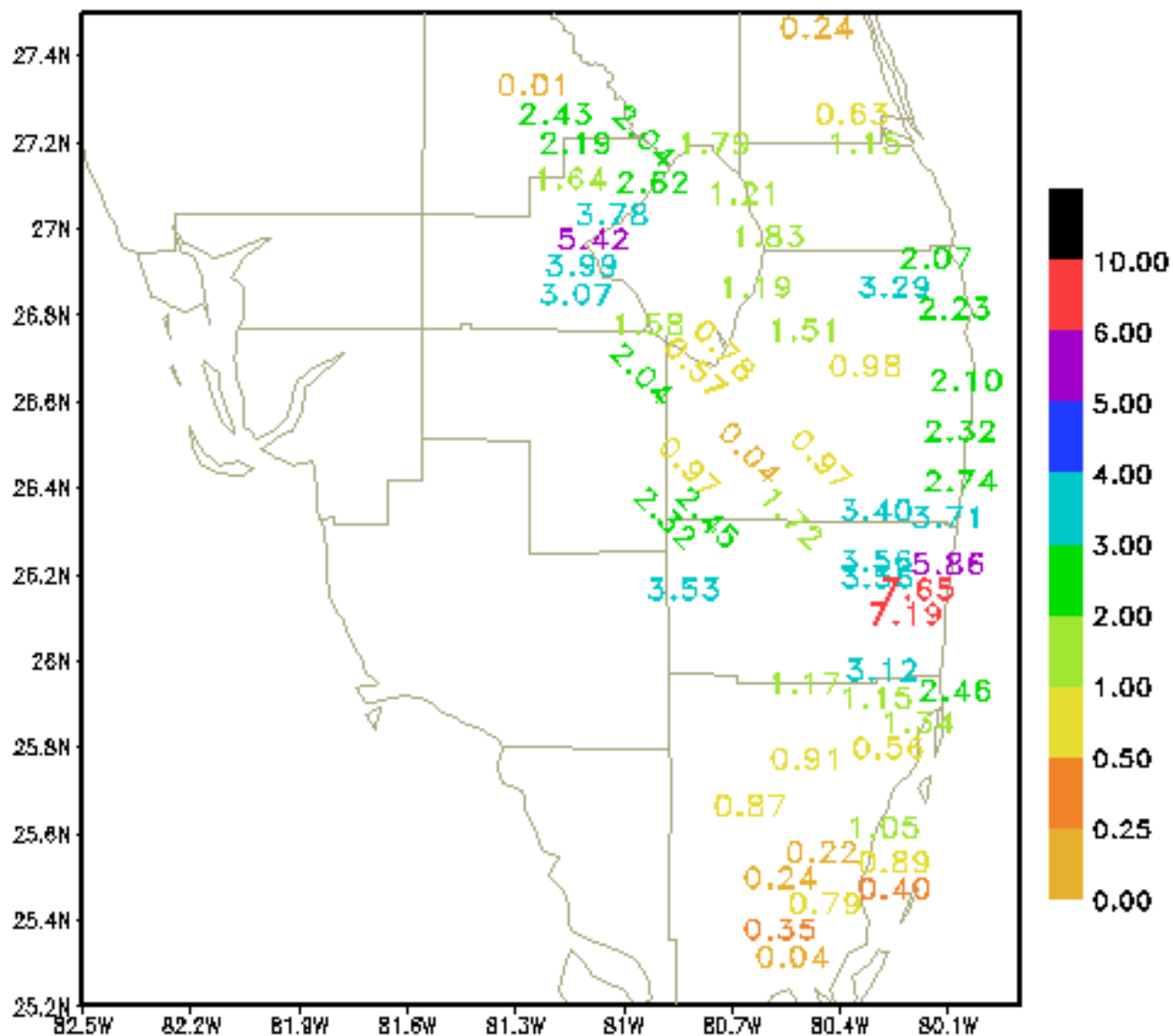
ISSUED: Tue 27-May-2003 08:28 EDT

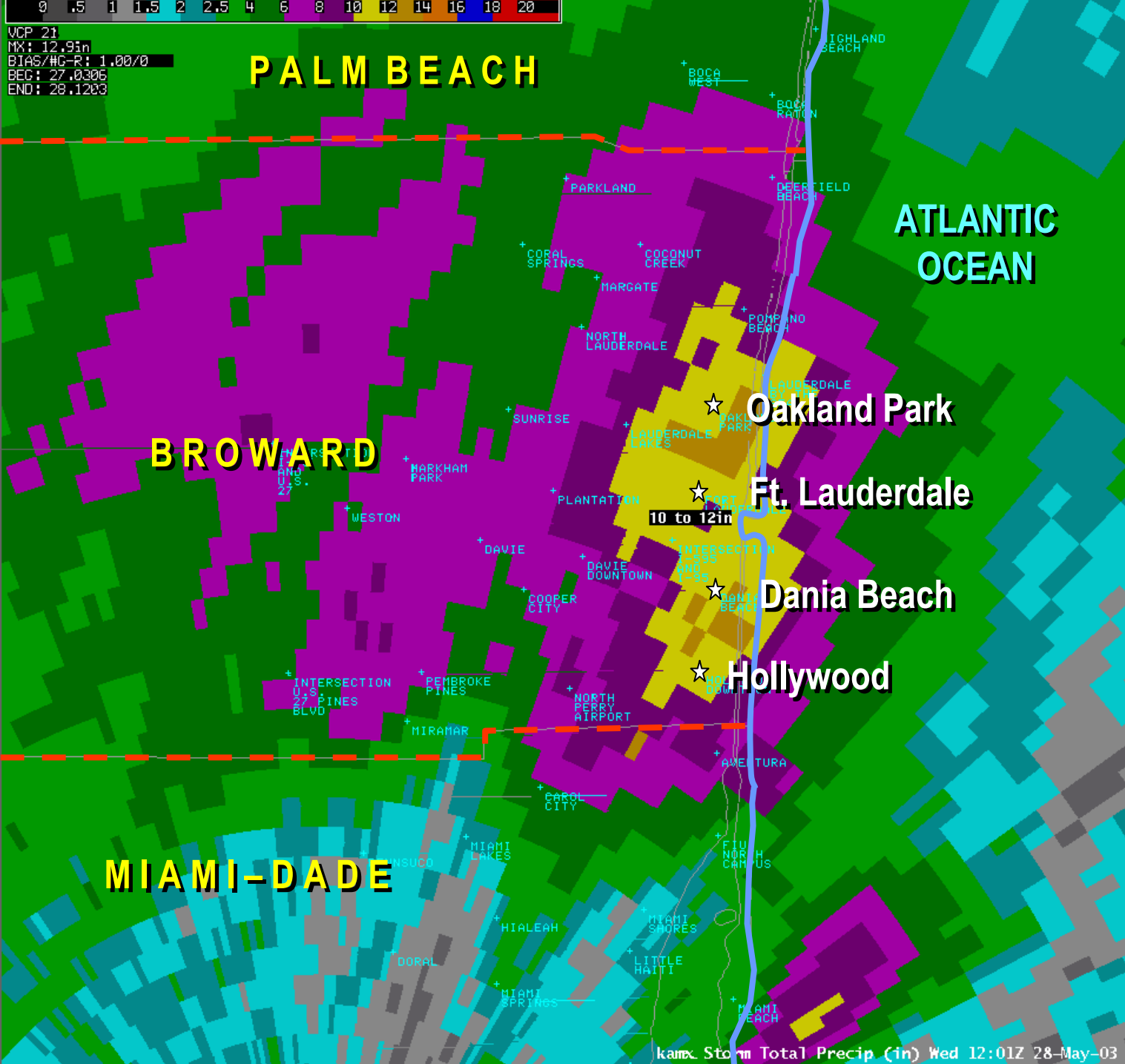




## SFWMD TELEMETRY RAINFALL READINGS SINCE 7am EST (8am EDT)

AS OF: 05/28/2003 05:27 Local







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# General Hydrologic Conditions

# General Hydrologic Conditions

 **Upper Chain** – Normal levels









 **Kissimmee River** - Normal seasonal flows

 **Lake Okeechobee** - Above desirable stage

 **Lake Okeechobee Agriculture**

 **Estuaries** – Normal seasonal salinity

# General Hydrologic Conditions

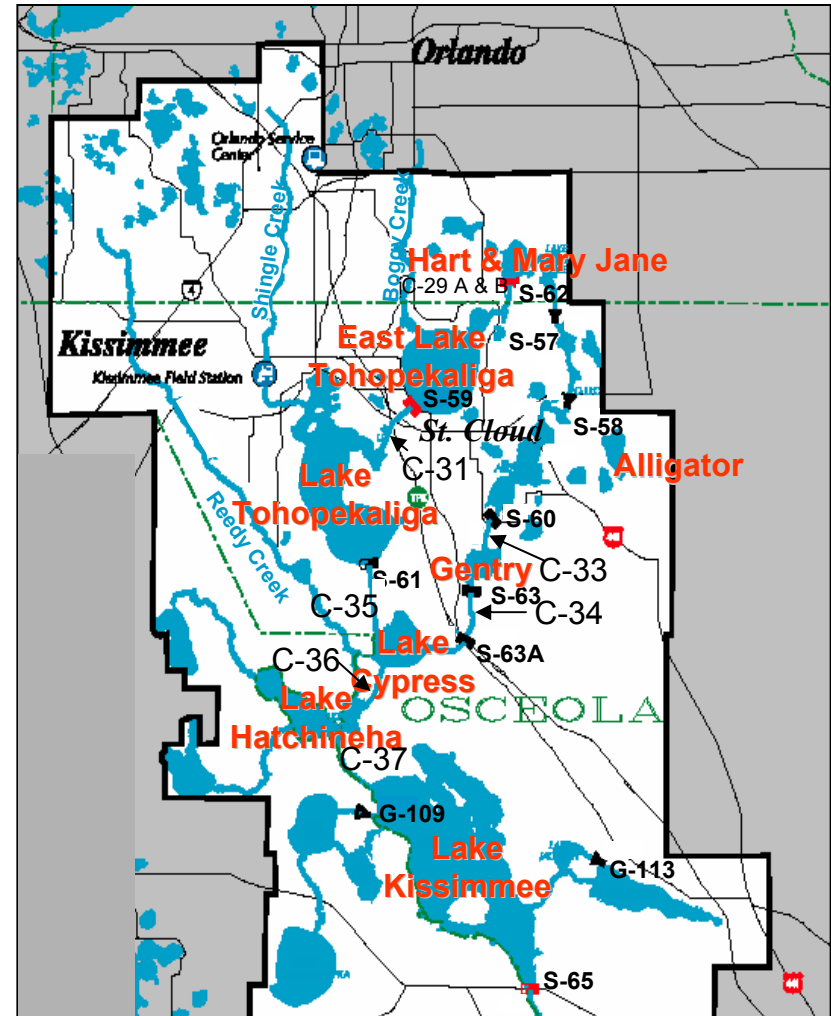
-  **Water Conservation Area 1** - Above Sched.
-  **Water Conservation Area 2** - Above Sched.
-  **Water Conservation Area 3** - Above Sched.
-  **ENP** - Normal seasonal conditions
-  **Fl. Bay** - Normal seasonal conditions
-  **Upper East Coast** – Normal canal levels
-  **Lower East Coast** - Norm. seasonal grndwtr.
-  **Lower West Coast** - Norm. seasonal grndwtr.



# Hydrologic Conditions

## Upper Kissimmee Basins

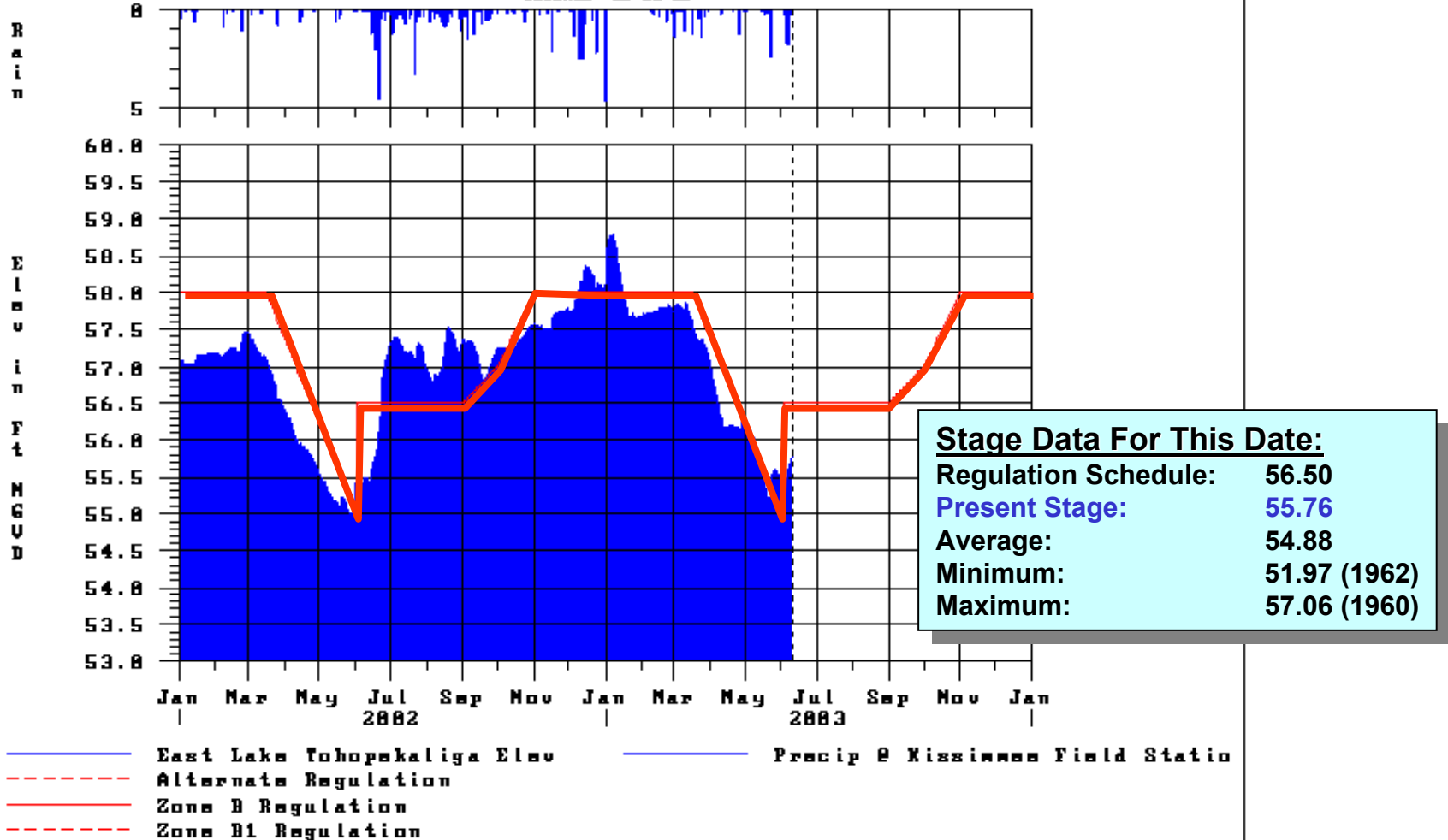
- Structures at most lakes have terminated regulatory releases
  - Lakes are now in a position to better handle wet season inflows
- Lake Toho Hydrilla Treatment
  - Operations continue to support treatment effort





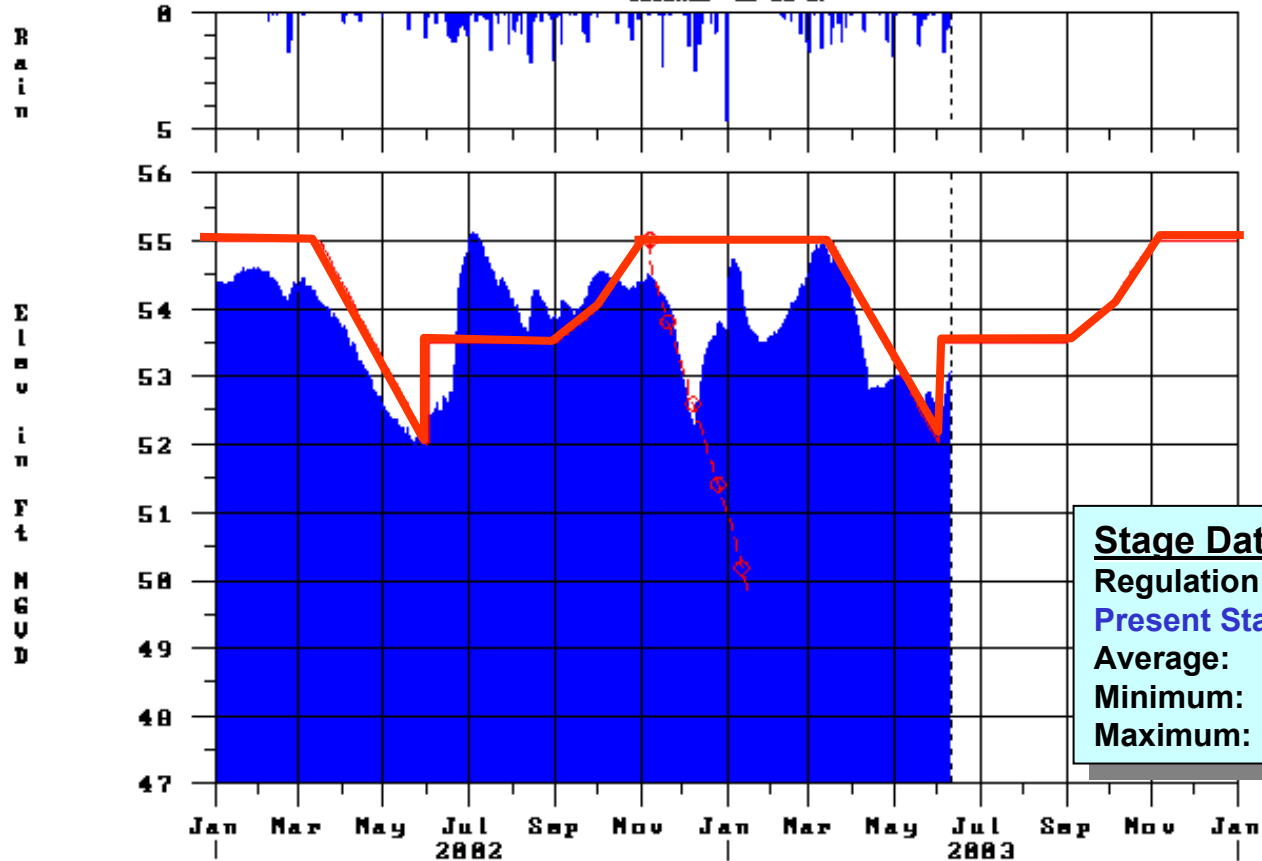
# Kissimmee River Basin - East Lake Tohopekaliga

10 JUN 03 00:38:55



# Kissinnee River Basin - Lake Tohopekaliga

10JUN03 00:30:57



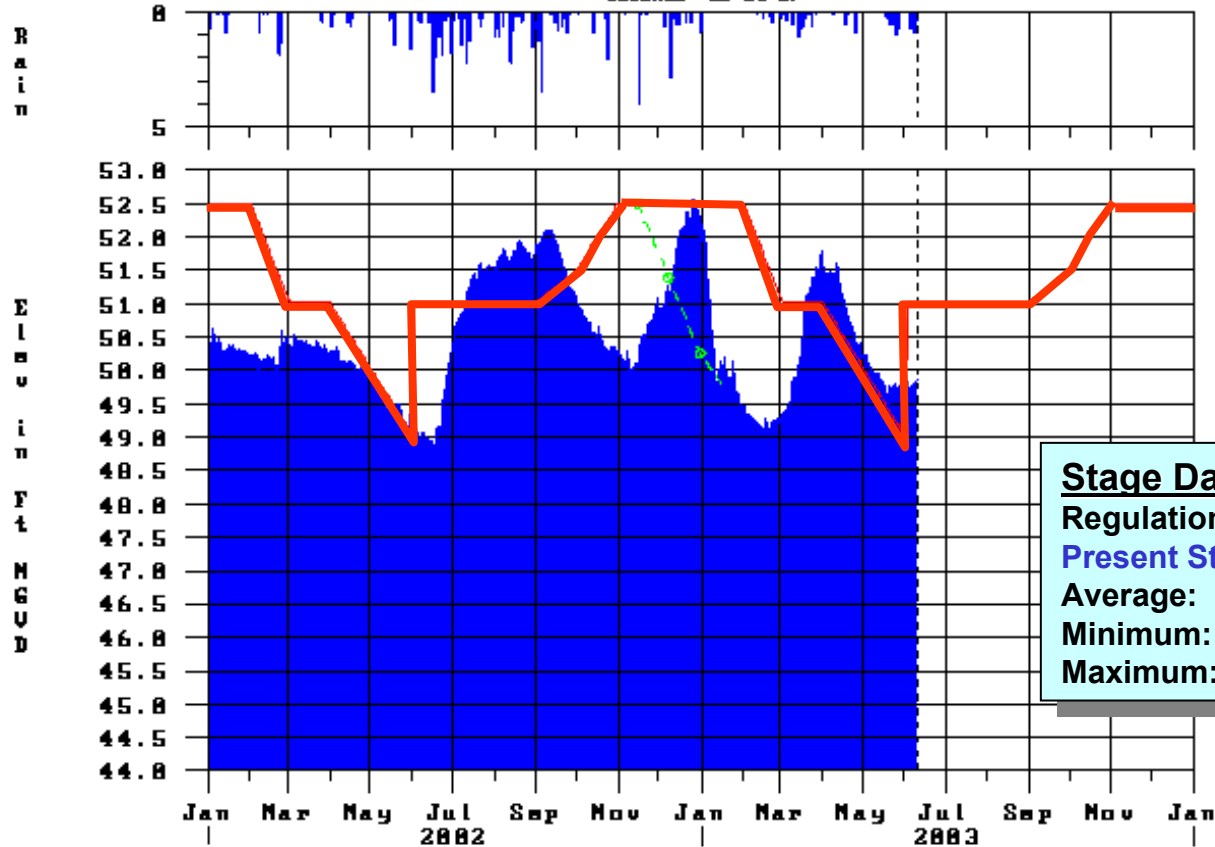
## Stage Data For This Date:

Regulation Schedule:	53.50
Present Stage:	53.08
Average:	52.12
Minimum:	48.69 (1987)
Maximum:	54.99 (1960)

- Lake Tohopekaliga
- - - Alternate Regulation
- Zone B Regulation
- - - ⊕ - - - Zone B1 Regulation
- - - Zone B1 (1996-1998)
- - - ⊕ - - - Zone B2 Regulation
- Precip @ S-61

# Kissimmee River Basin - Lake Kissimmee

10 JUN 03 00:31:07

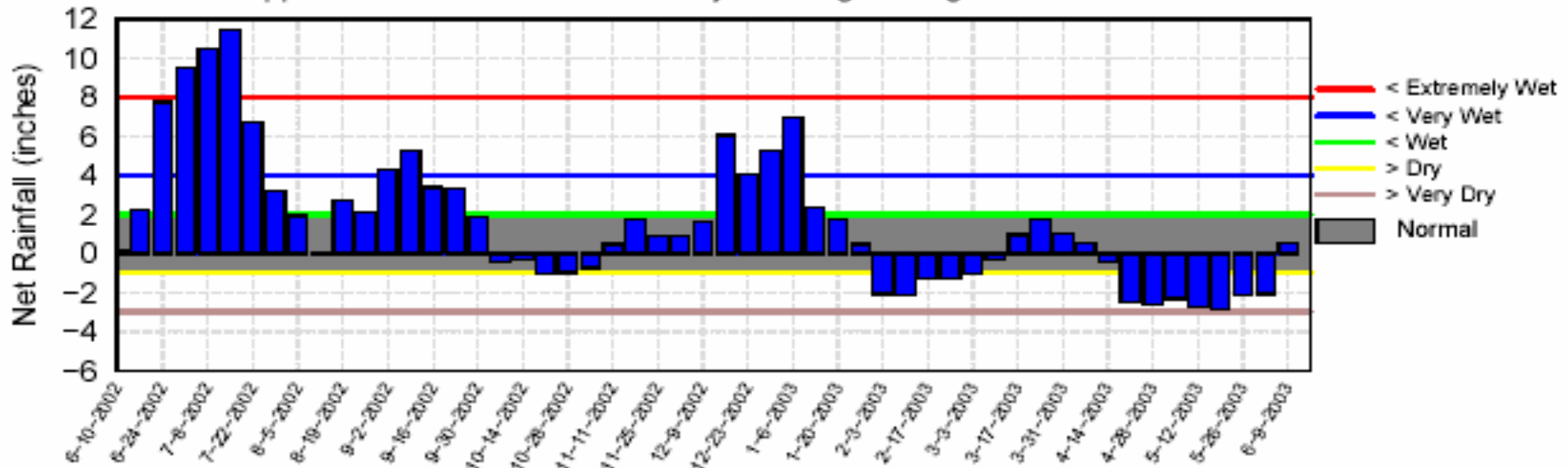


## Stage Data For This Date:

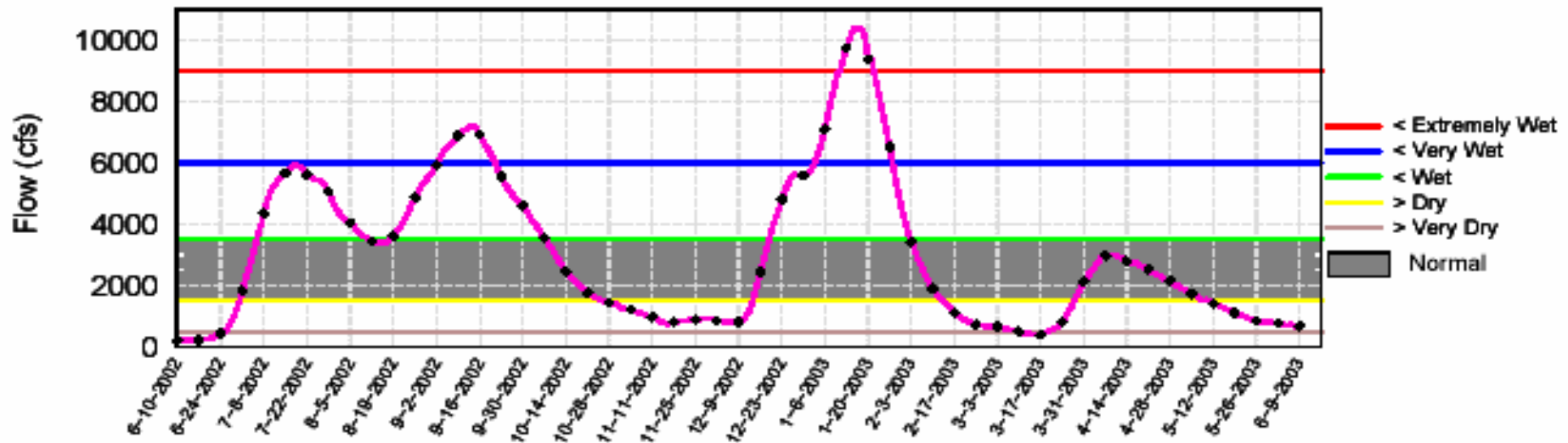
Regulation Schedule:	51.00
Present Stage:	50.12
Average:	49.15
Minimum:	44.24 (1973)
Maximum:	53.40 (1977)

# Tributary Basin Condition Indicators as of June 9, 2003

## Upper & Lower Kissimmee 30-day Running Average of Net Rainfall



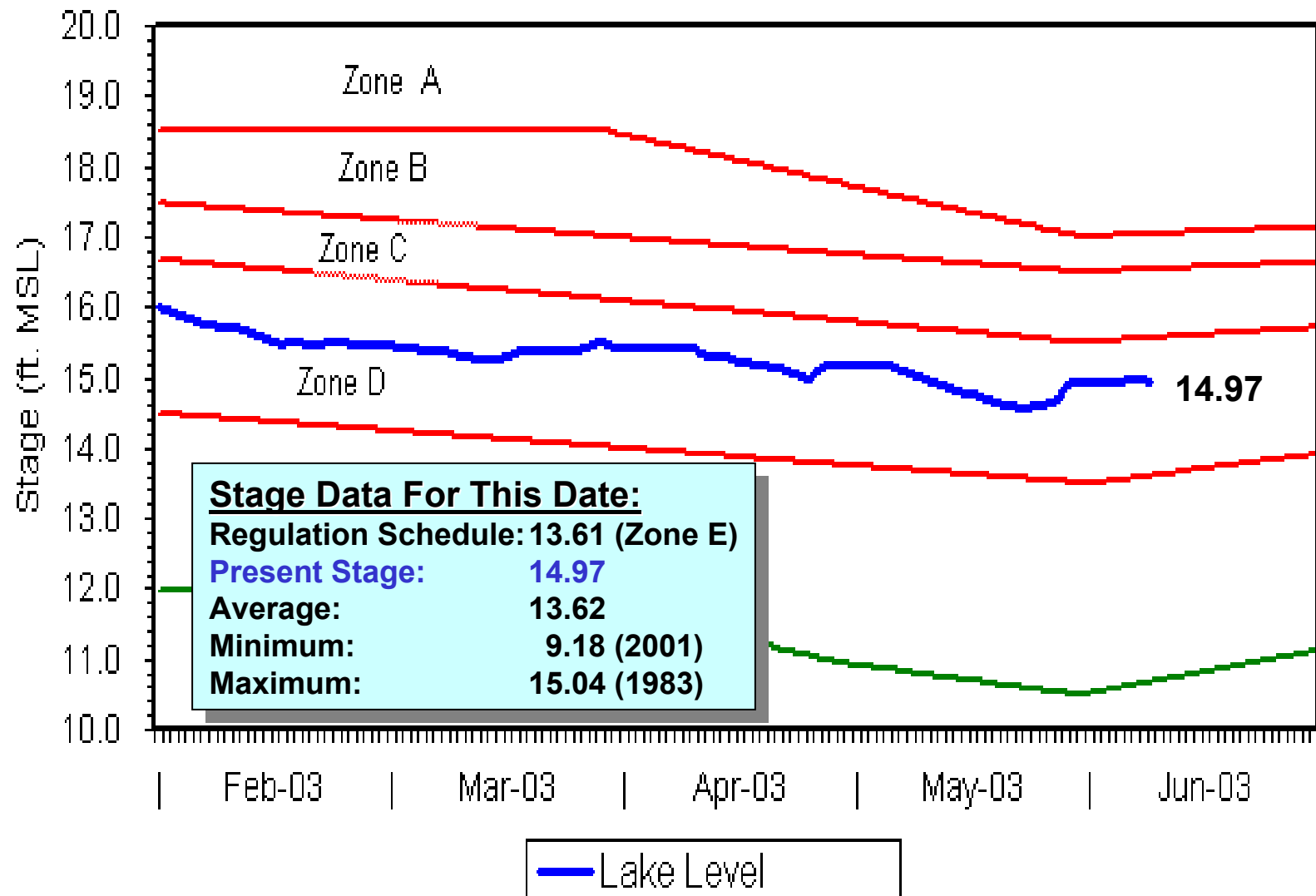
## S-65E 14-day Running Average of Flow

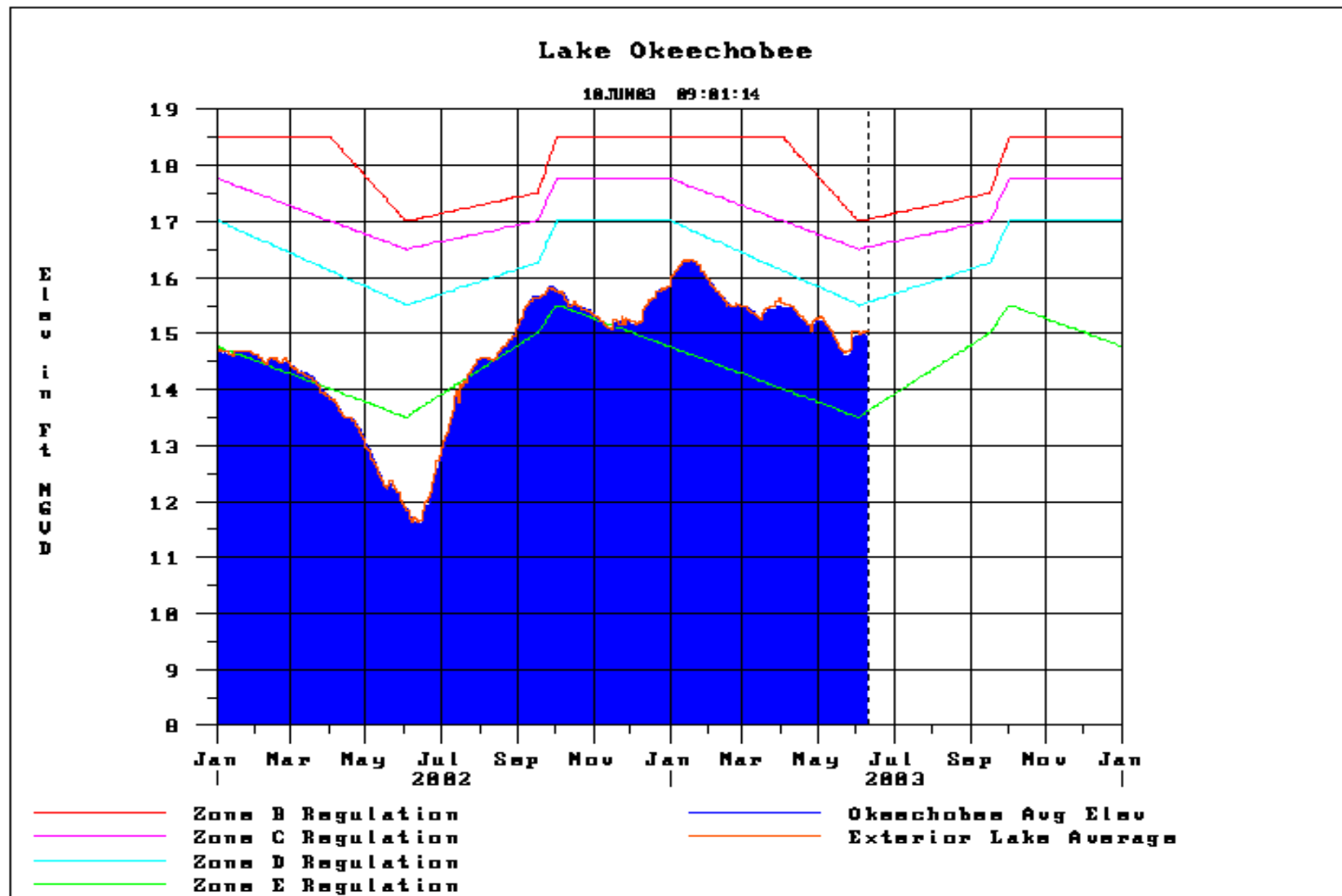


# Hydrologic Conditions Lake Okeechobee

- Lake Okeechobee stages have not receded because of above average rainfall around the lake
  - Kissimmee River inflows have remained low
  - Largest inflows are from Indian Prairie basins
- No agricultural irrigation demands
  - Ag areas have been under flood control operations since mid-May
- USACE Currently making Level I Pulse

# Lake Okeechobee





# Lake Okeechobee

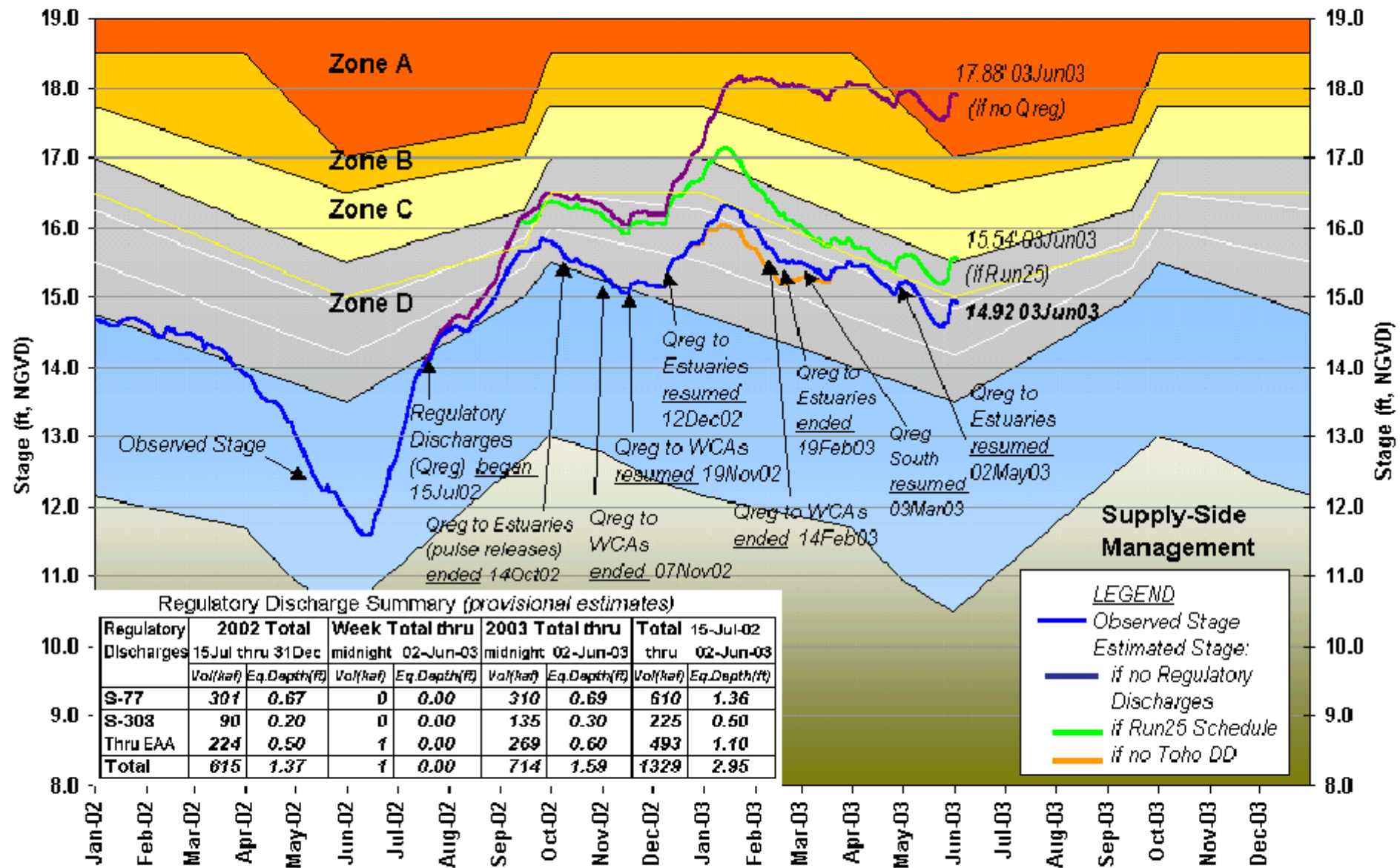
## Current Operations

- **Regulation Schedule**
  - **Stage presently in Zone D**
  - *Dry* inflow conditions
  - *Normal* rainfall conditions
  - *Wet* seasonal forecast
  - *Normal* multi-seasonal forecast
- **No Discharge to the WCAs**
  - **WCAs above schedule**
- **Level I Pulse to estuaries**





# Lake Okeechobee Stage Comparison

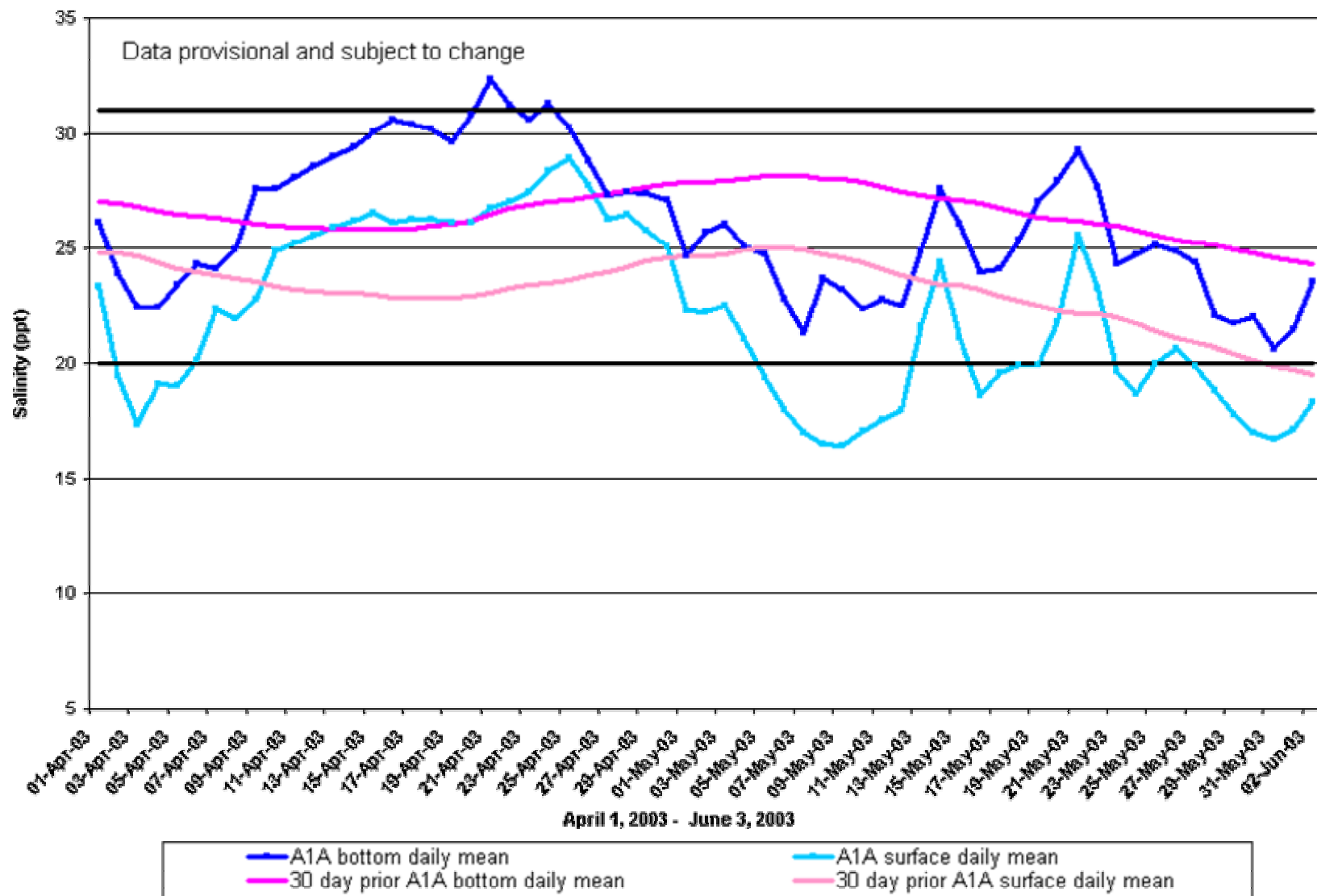


# Hydrologic Conditions

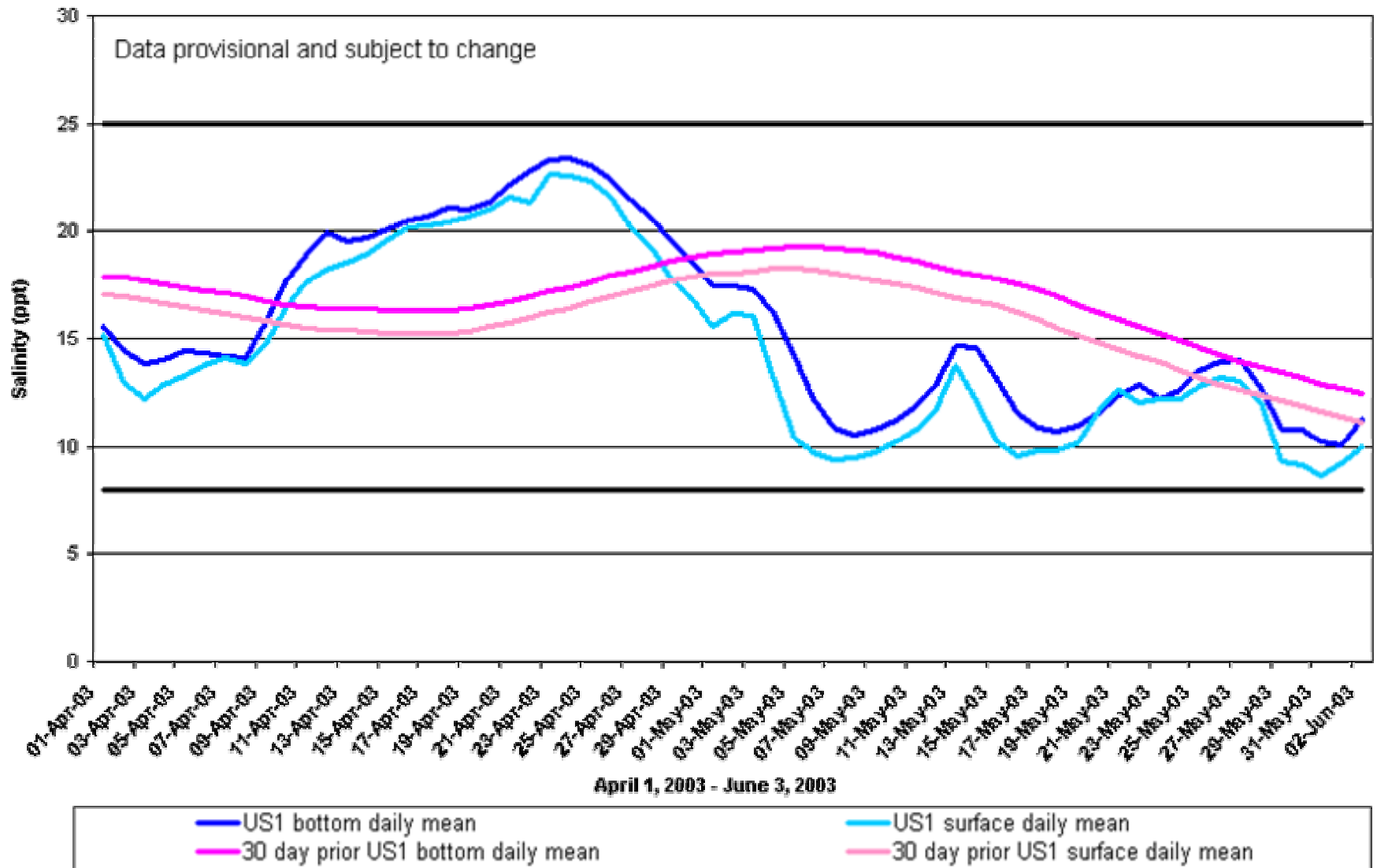
## St. Lucie Estuary

- As a result of the recent Level I pulse, salinity measurements near the water surface fell below the lower end of the preferred range at the A-1-A sampling station
- Salinity measurements near the surface at the US#1 station is within, but near the bottom of the preferred range
- Salinity measurements near the bottom of the Estuary are within the preferred range at both sites

# **Salinity Envelope and A1A Surface and Bottom Mean Daily Salinity in the St. Lucie Estuary**

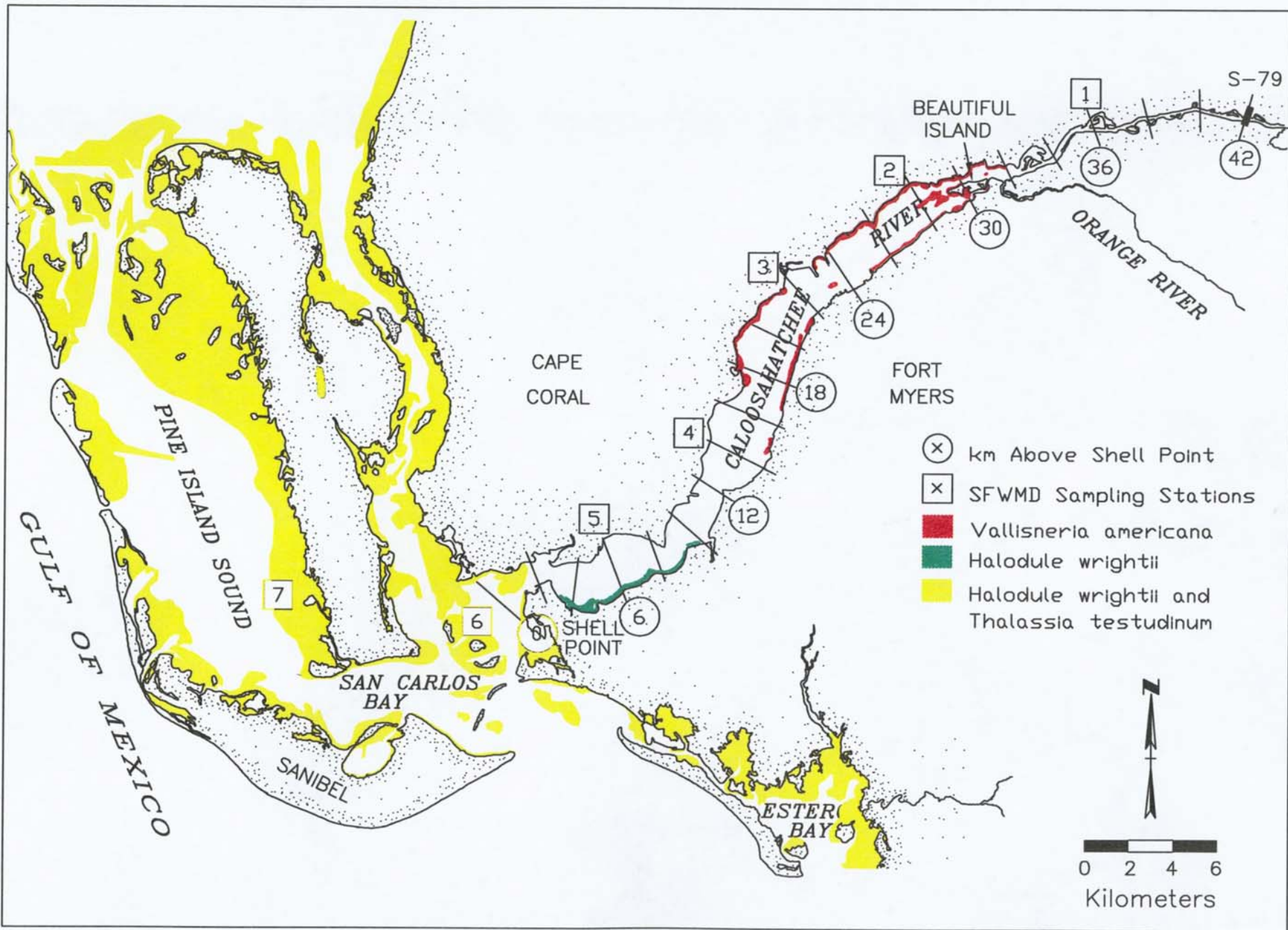


# **Salinity Envelope and US1 Surface and Bottom Mean Daily Salinity in the St. Lucie Estuary**

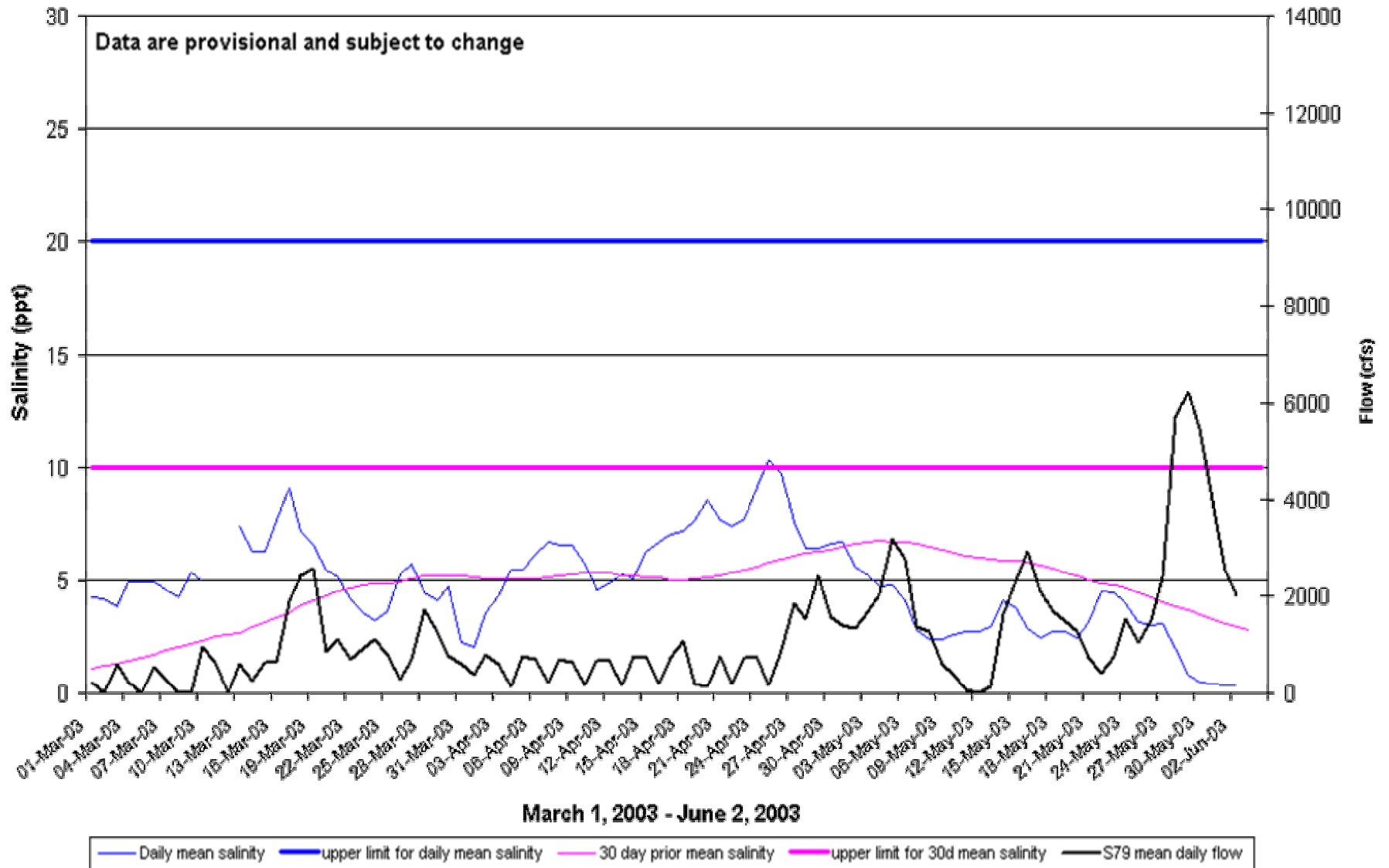


# Hydrologic Conditions Caloosahatchee Estuary

- The 30-day average inflow at S-79 is 1981 cfs and within the preferred flow range.
- The monthly survey of Vallisneria in the upper estuary revealed that densities increased in the past month, indicating continued recovery.
- Salinities in the lower estuary may soon begin to stress Halodule.
- Salinity in San Carlos Bay remains within the tolerable range for seagrass.



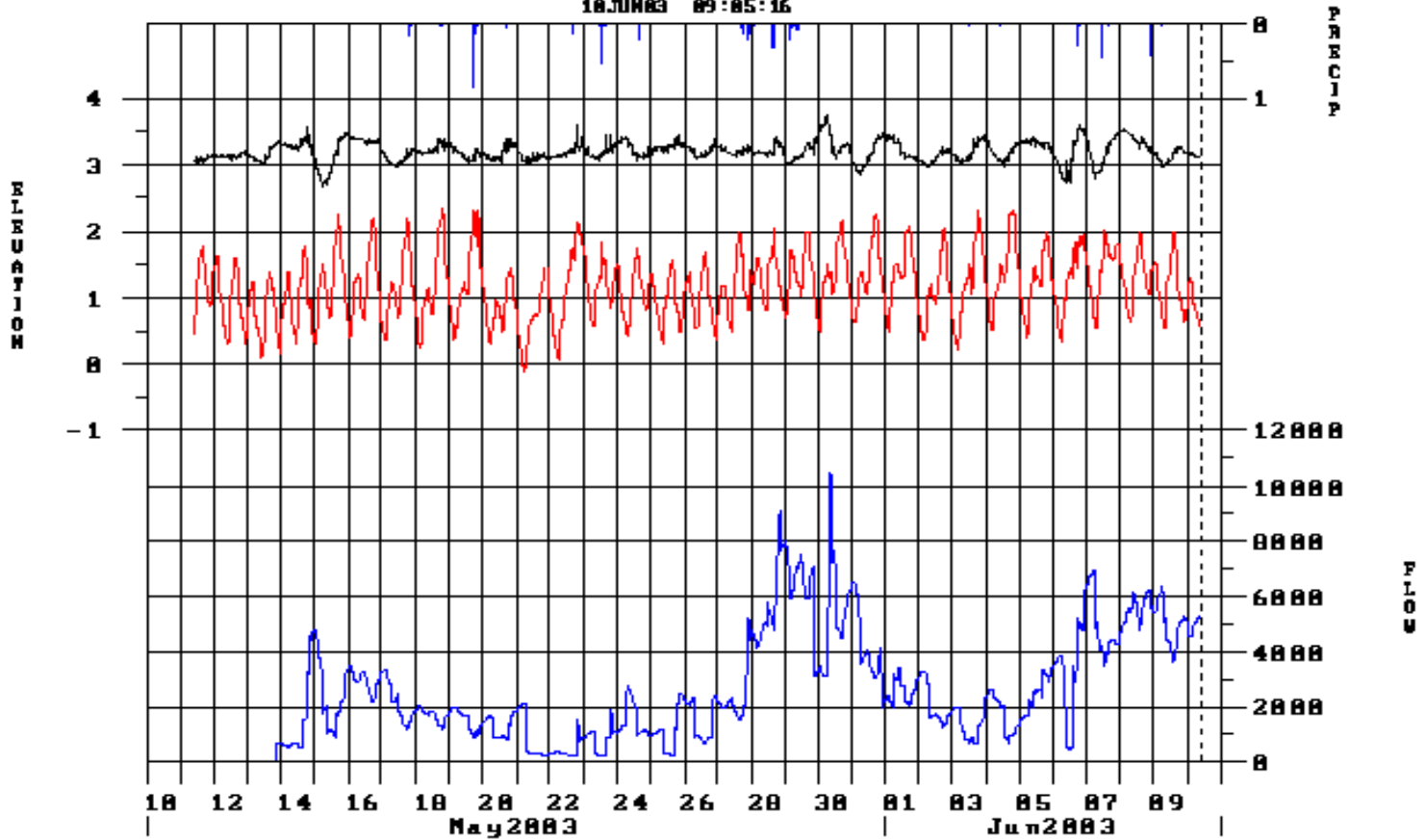
# Salinity at City of Ft. Myers Yacht Basin and Upper Limit Exceedance of Caloosahatchee MFL and Mean Daily Flow from S79



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# **S79 - Headwater, Tailwater, Flow & Rainfall**

10 JUN 03 09:05:16

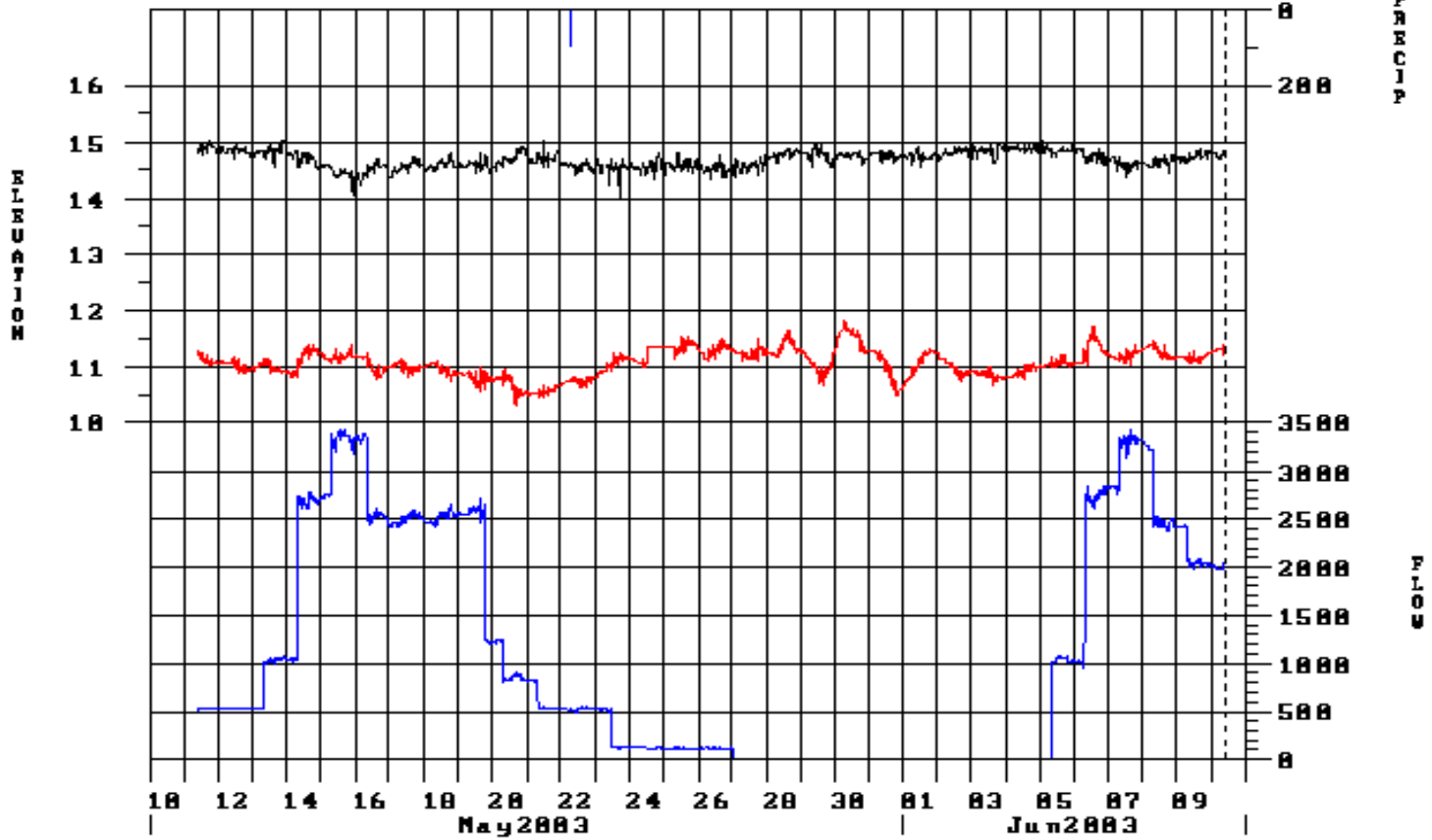


- Discharge in CFS
- Headwater Elev in Ft-MGVD
- Tailwater Elev in Ft-MGVD
- Precip in inches



# S77 - Headwater, Tailwater, Flow & Rainfall

10 JUN 03 09:05:05

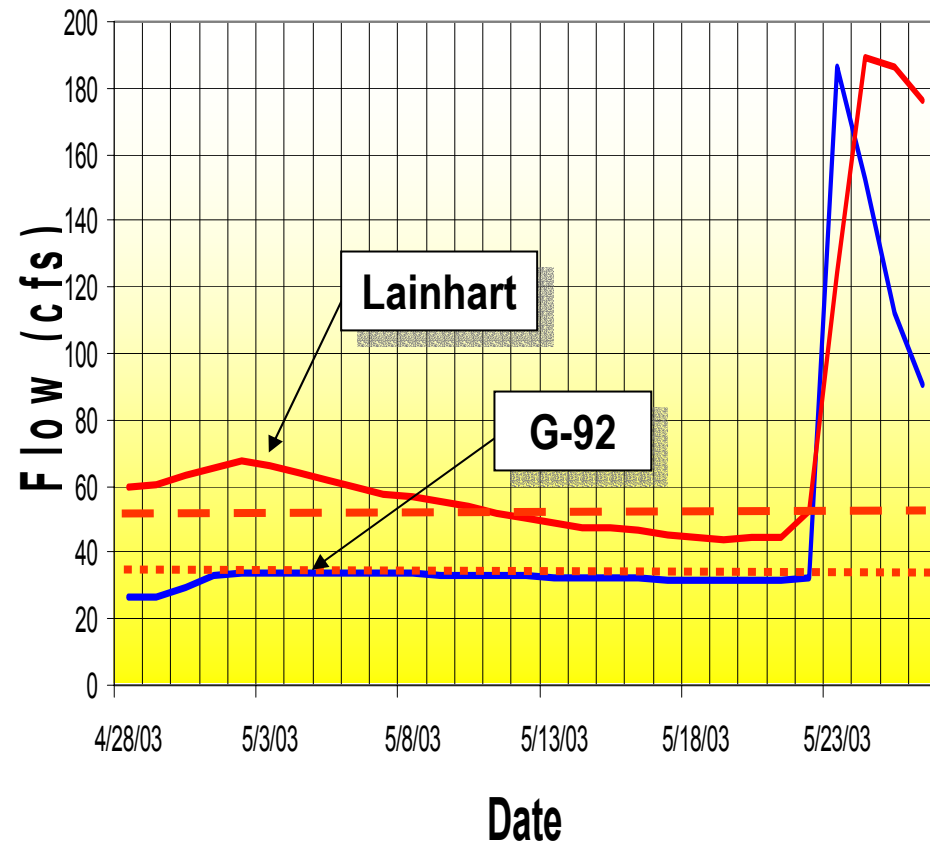


- Discharge in CFS
- Headwater Elev in Ft-MGVD
- Tailwater Elev in Ft-MGVD
- Precip in Inches

# Loxahatchee River

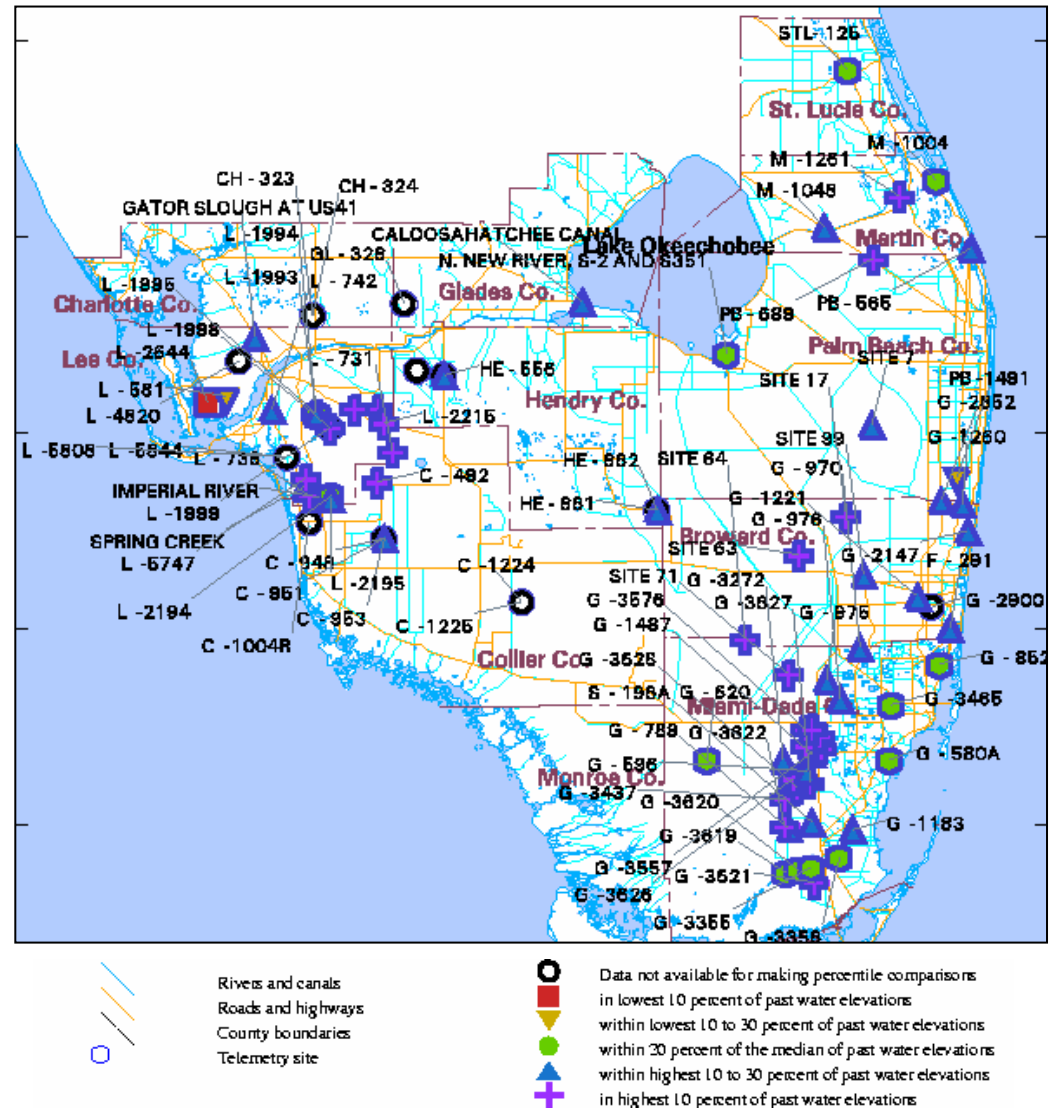
- Recent rainfall has increased flows significantly in the Loxahatchee River Basin
- Flow across Lainhart Dam has recently approached 200 cfs

Loxahatchee River Flows

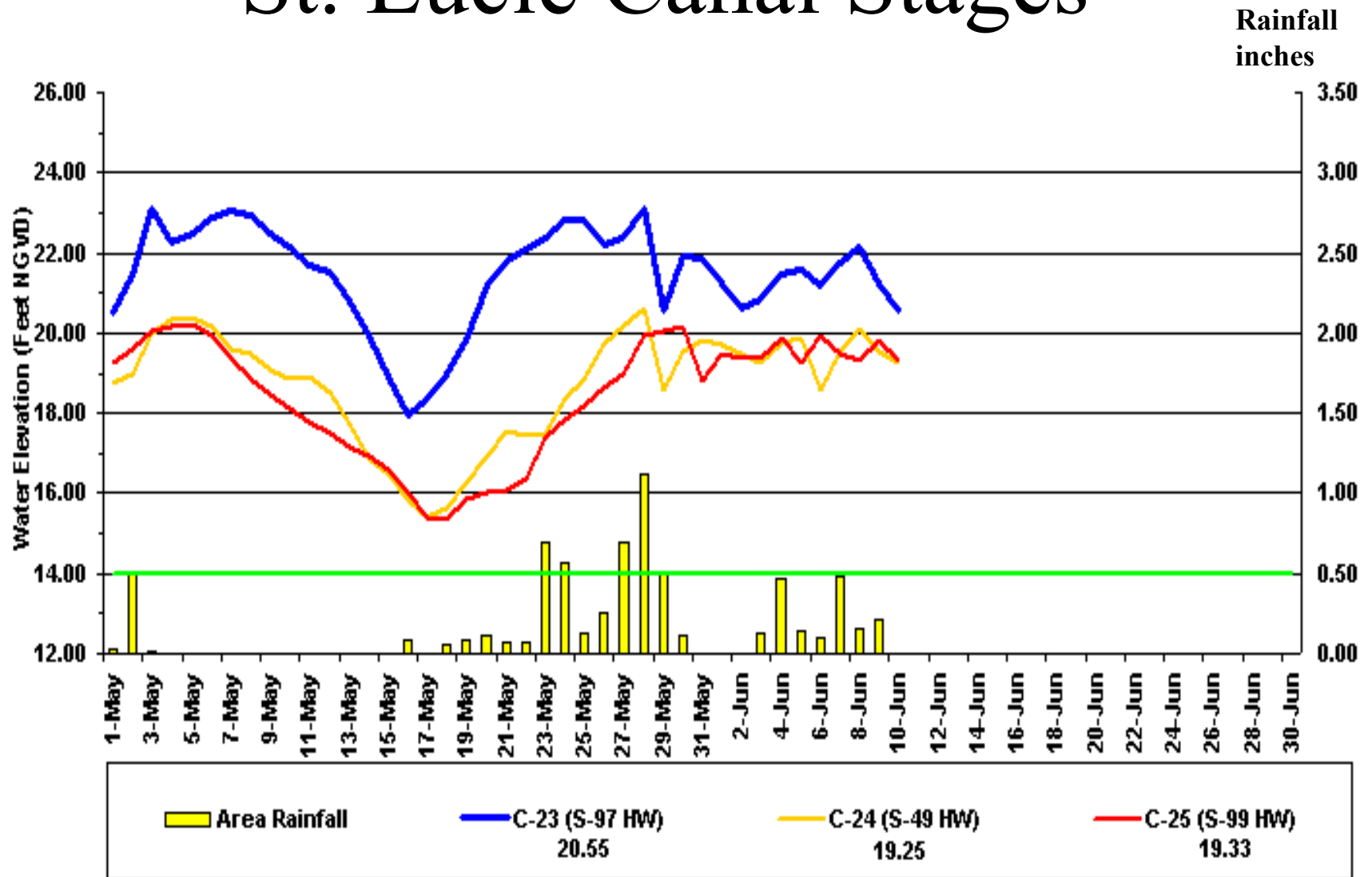


# Groundwater Conditions

- Upper East Coast
  - Normal seasonal levels
- Lower East Coast
  - Above normal seasonal levels
- Lower West Coast Region:
  - above normal seasonal levels



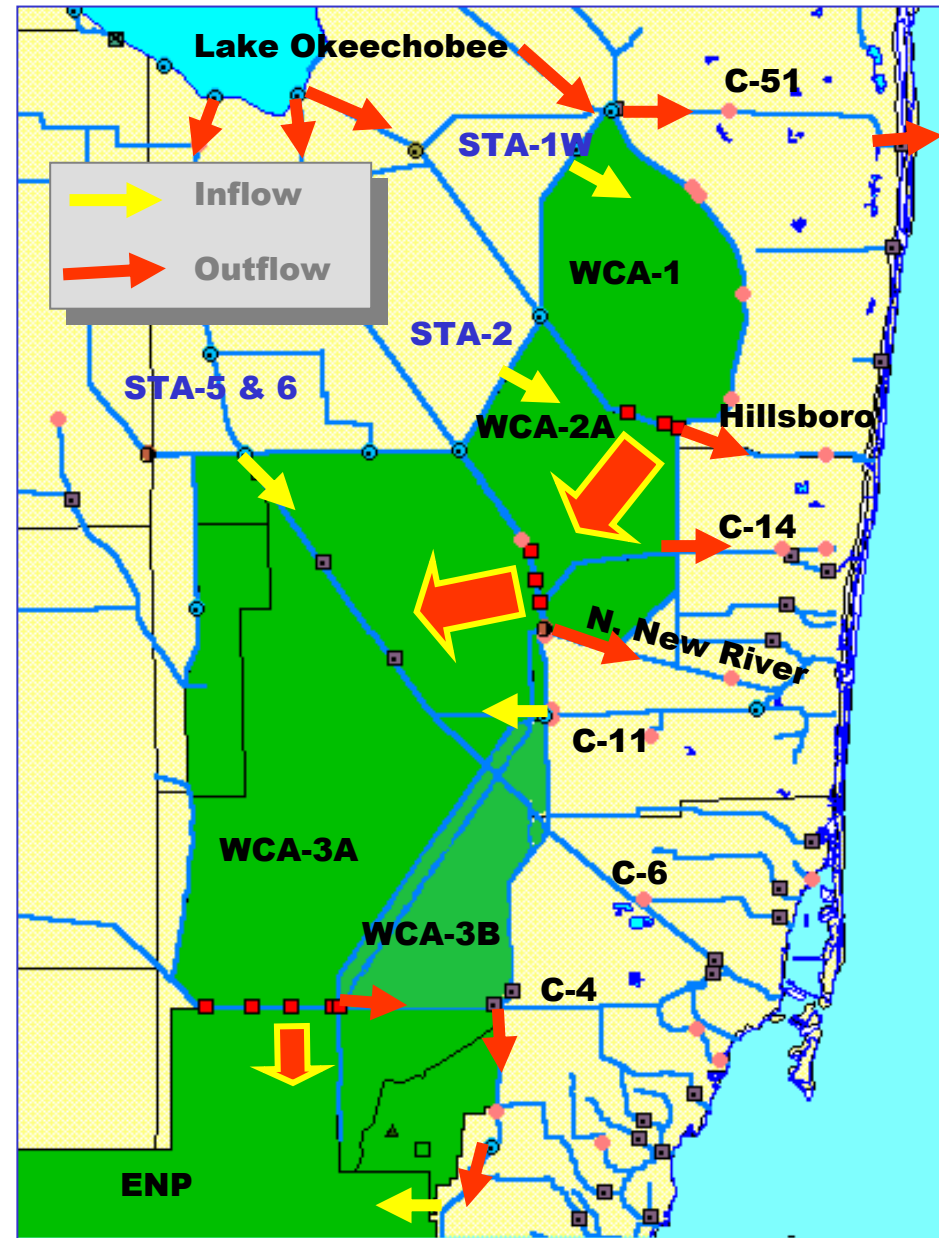
# St. Lucie Canal Stages



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# Water Conservation Areas

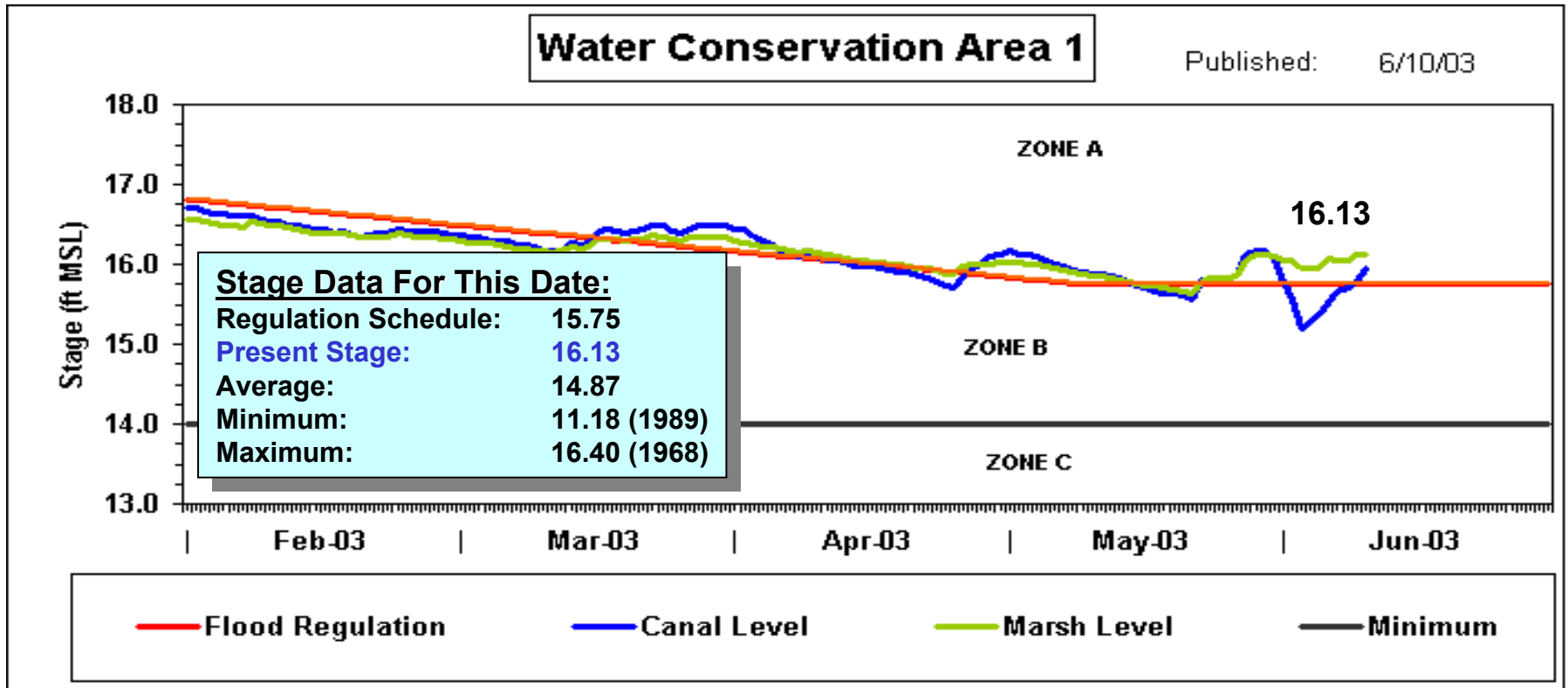
- WCA-1 stages above schedule
- WCA-2A stages are above regulation schedule
- WCA-3A stages are above regulation schedule
  - IOP releases to SDCS



# Hydrologic Conditions

## Water Conservation Area No. 1

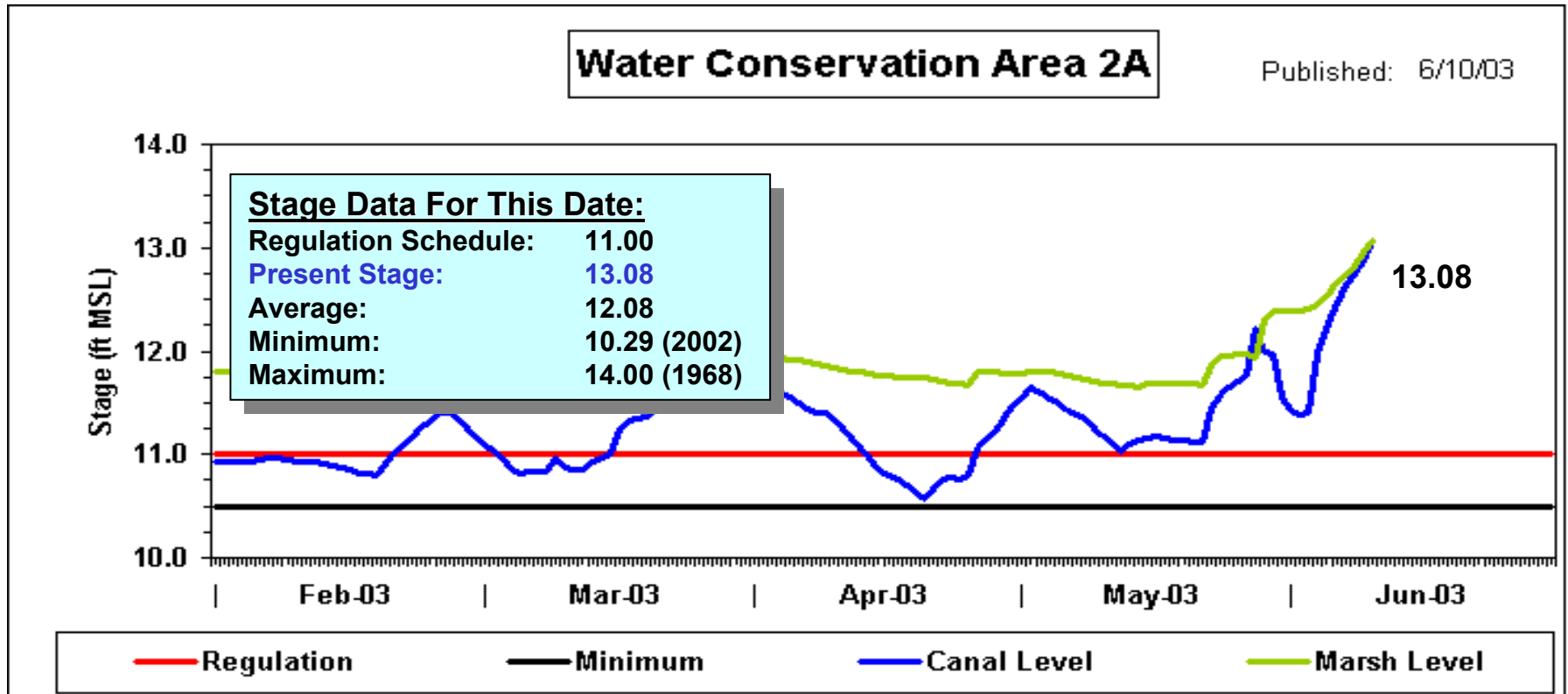
- Stages above regulatory schedule



# Hydrologic Conditions

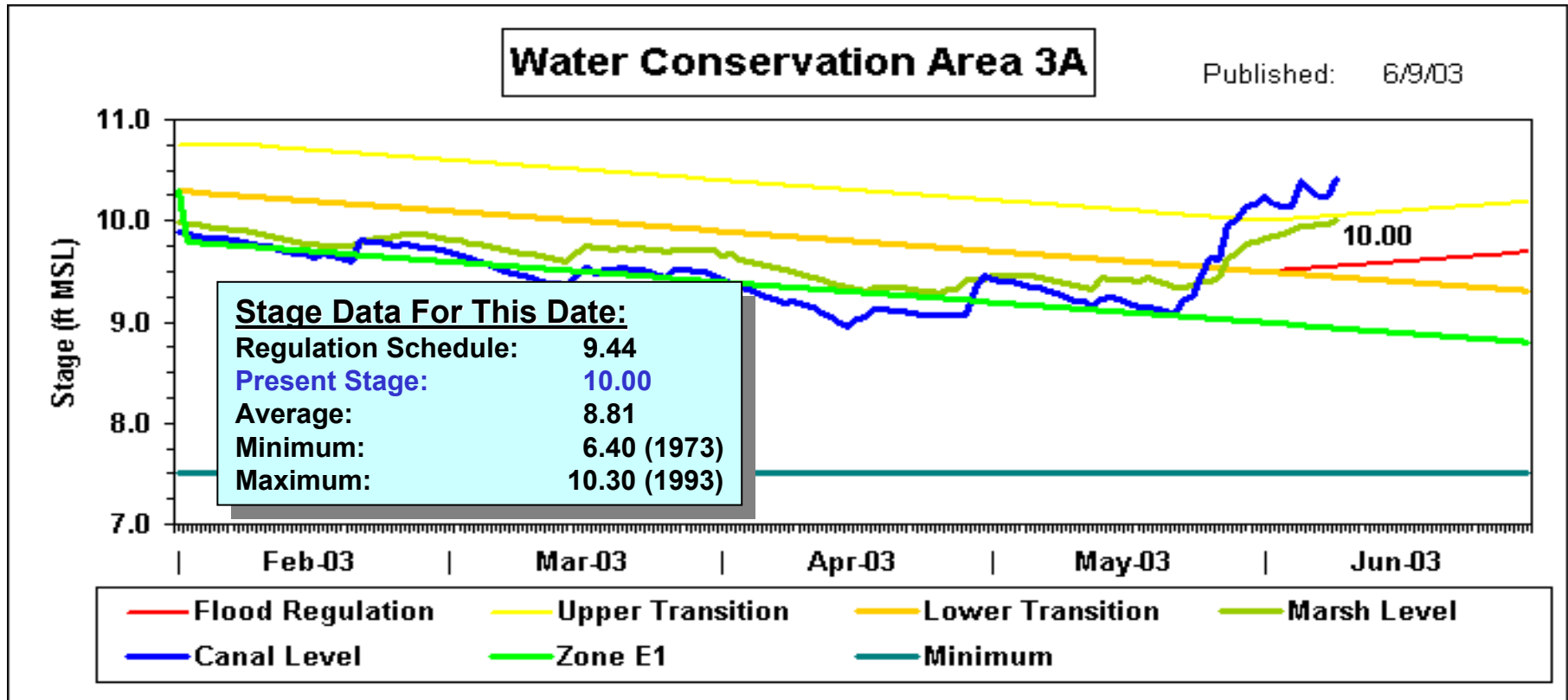
## Water Conservation Area No. 2A

- Above regulation schedule



# Hydrologic Conditions Water Conservation Areas

- Stages above regulation schedule



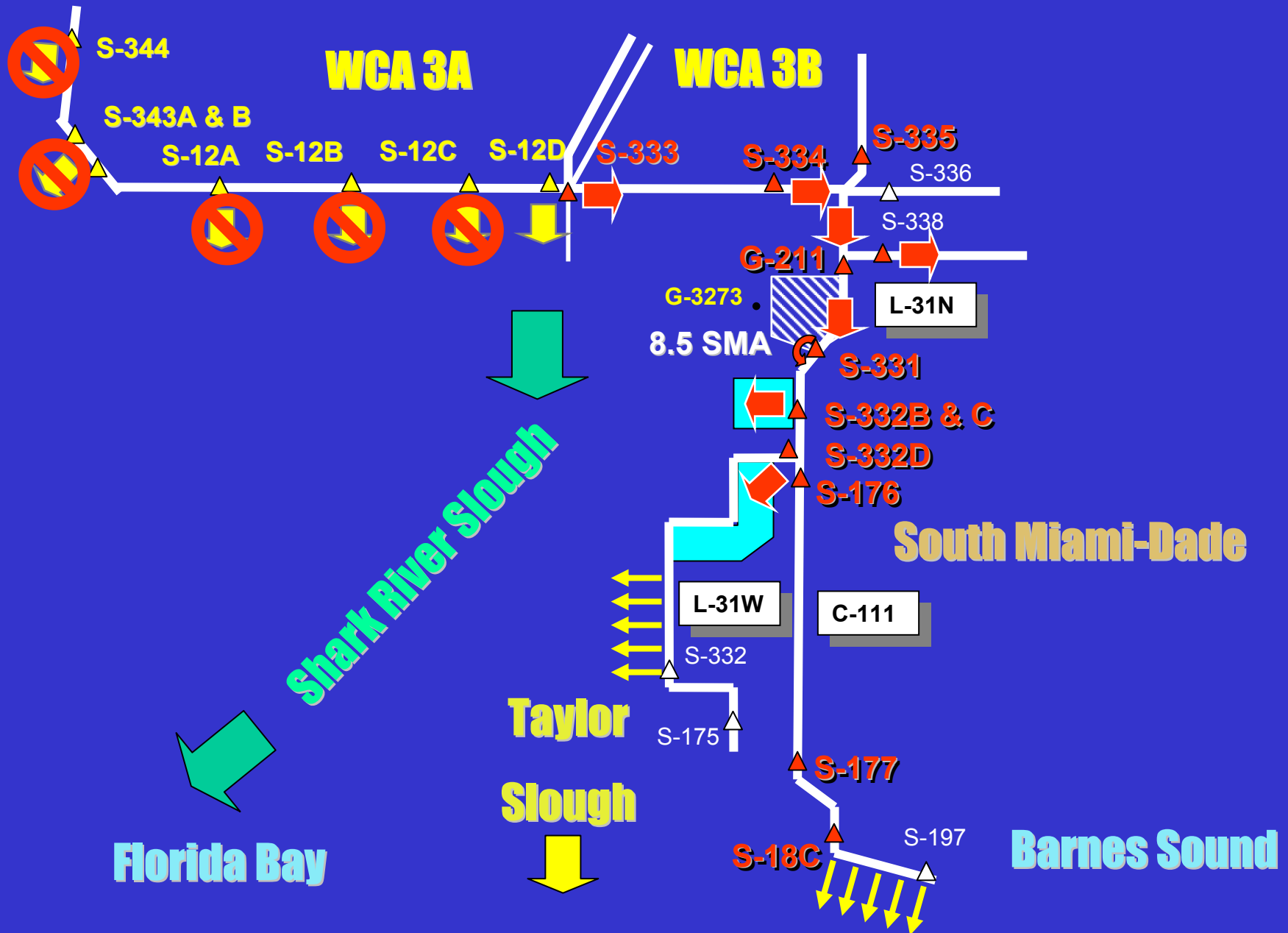


# Hydrologic Conditions

## SDCS Current Operations

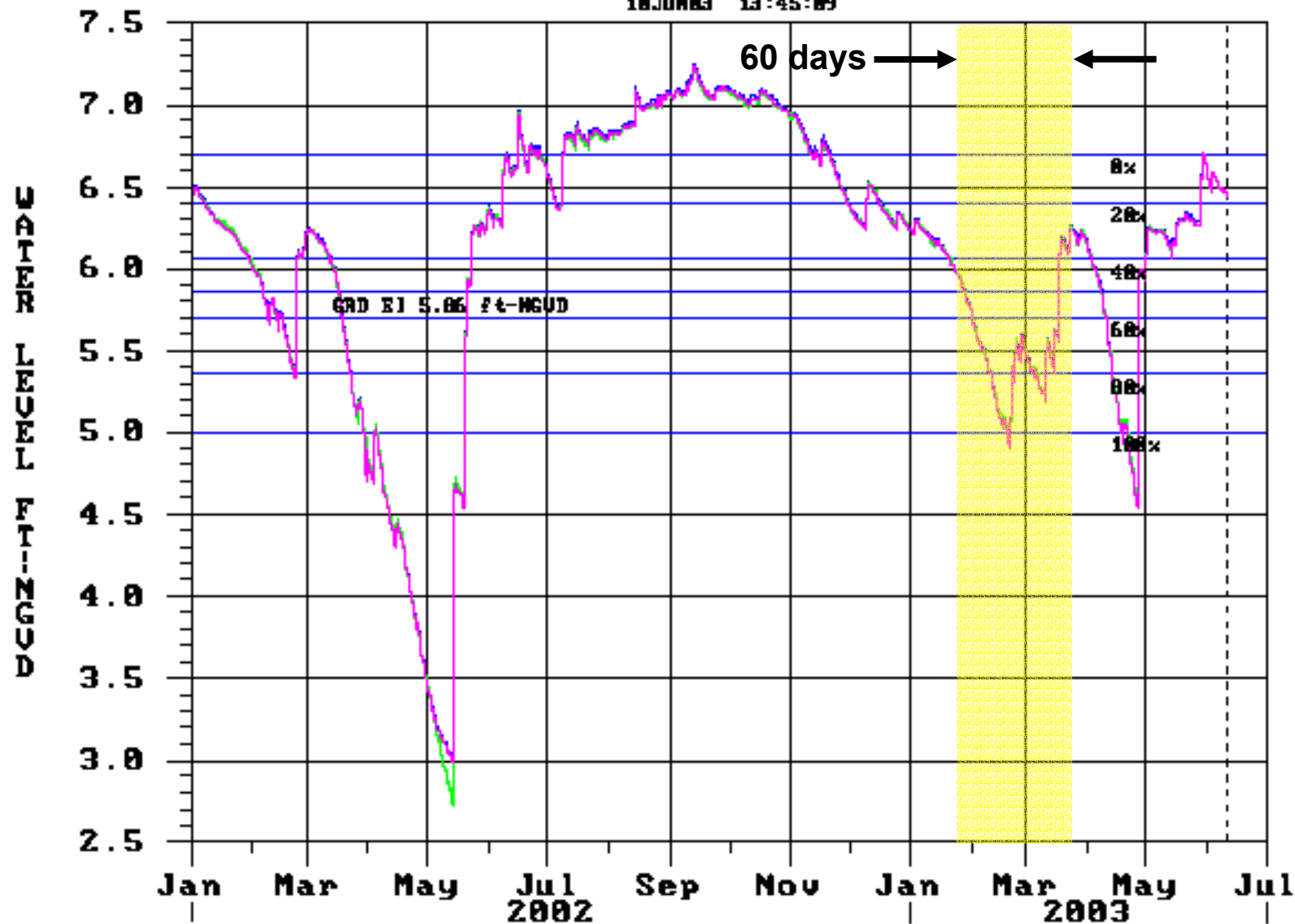
- Current Operations are in transition from flood operations to normal operations
- Regulatory releases from WCA-3A to SDCS temporarily suspended because of recent rainfall
  - Releases will resume when system stabilizes
  - Pumping at S-331 per 8.5 SMA criteria
  - Pumping to detention areas at S-332B,C & D

# SDCS - IOP General Operations



# Western Marl Prairie Habitat - Subpopulation A

18JUN03 13:45:09



NP-205 Water Levels

NP-205 Water Levels Electric Tape

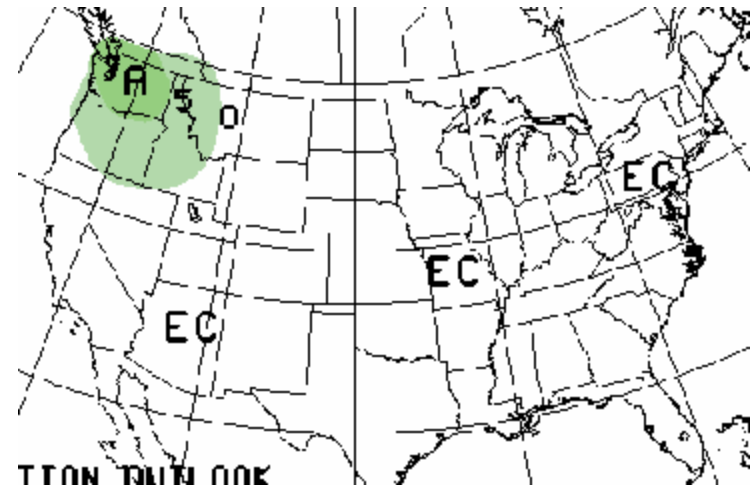
NP-205 Water Levels GOES

# Climate Outlook

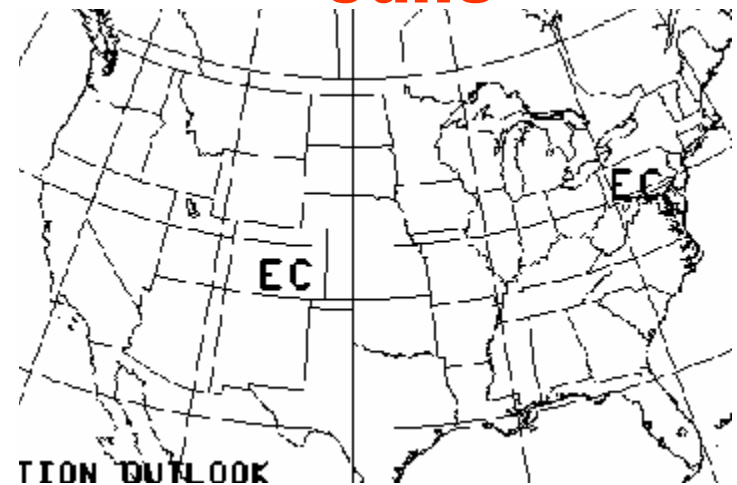
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# Seasonal Climatic Outlook

- CPC reports that June thru August 2003 has an “equal” probability of above average, average, or below average precipitation



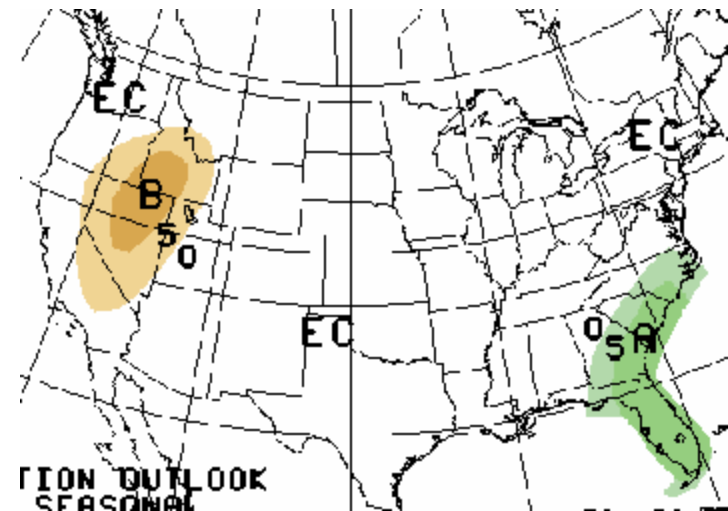
**June**



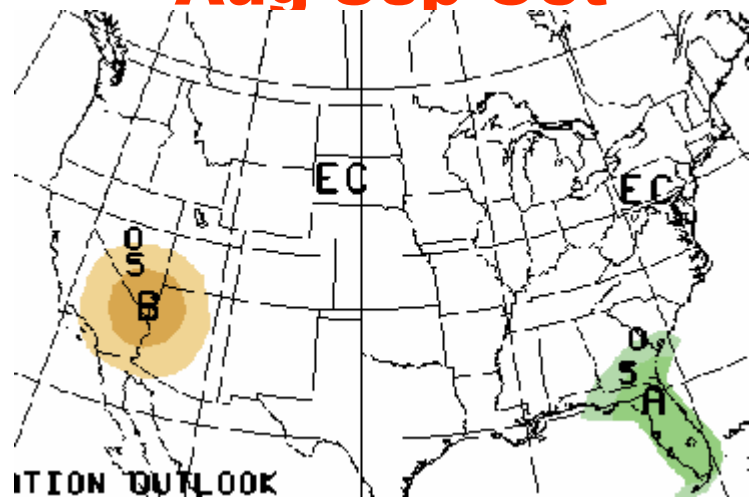
**Jun-Jul-Aug**

# Seasonal Climatic Outlook

- CPC reports that August through November 2003 has slightly higher probability of above average precipitation



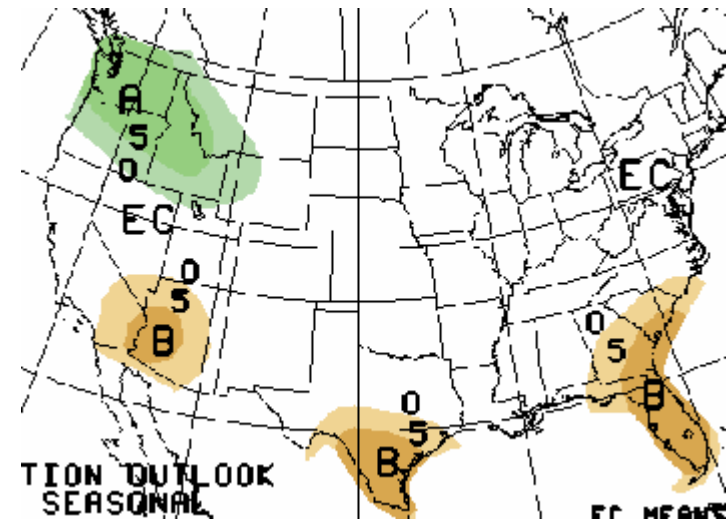
**Aug-Sep-Oct**



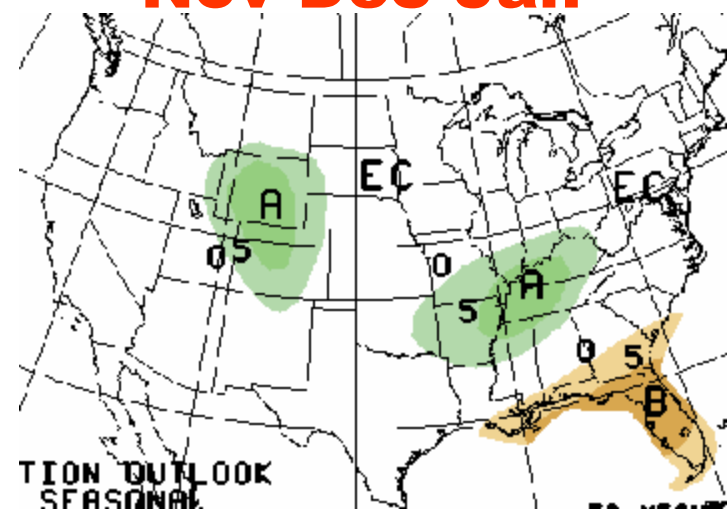
**Sep-Oct-Nov**

# Seasonal Climatic Outlook

- CPC reports that December 2003 through March 2004 has slightly higher probability of below average precipitation
- Based on the probability of a La Nina system developing in the Pacific



**Nov-Dec-Jan**



**Jan-Feb-Mar**

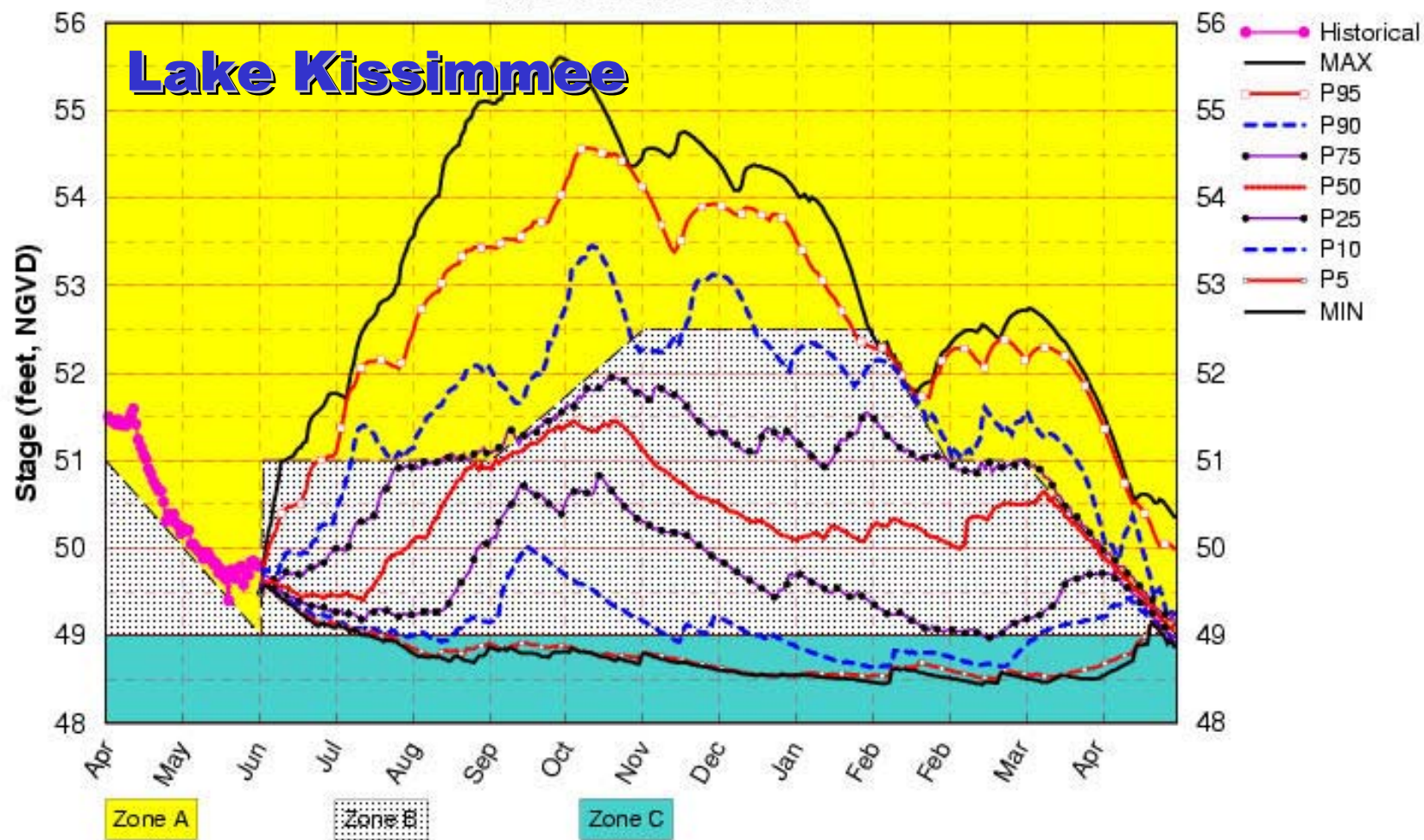
# Hydrologic Outlook

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# S65 UKISS Jun 2003 Position Analysis

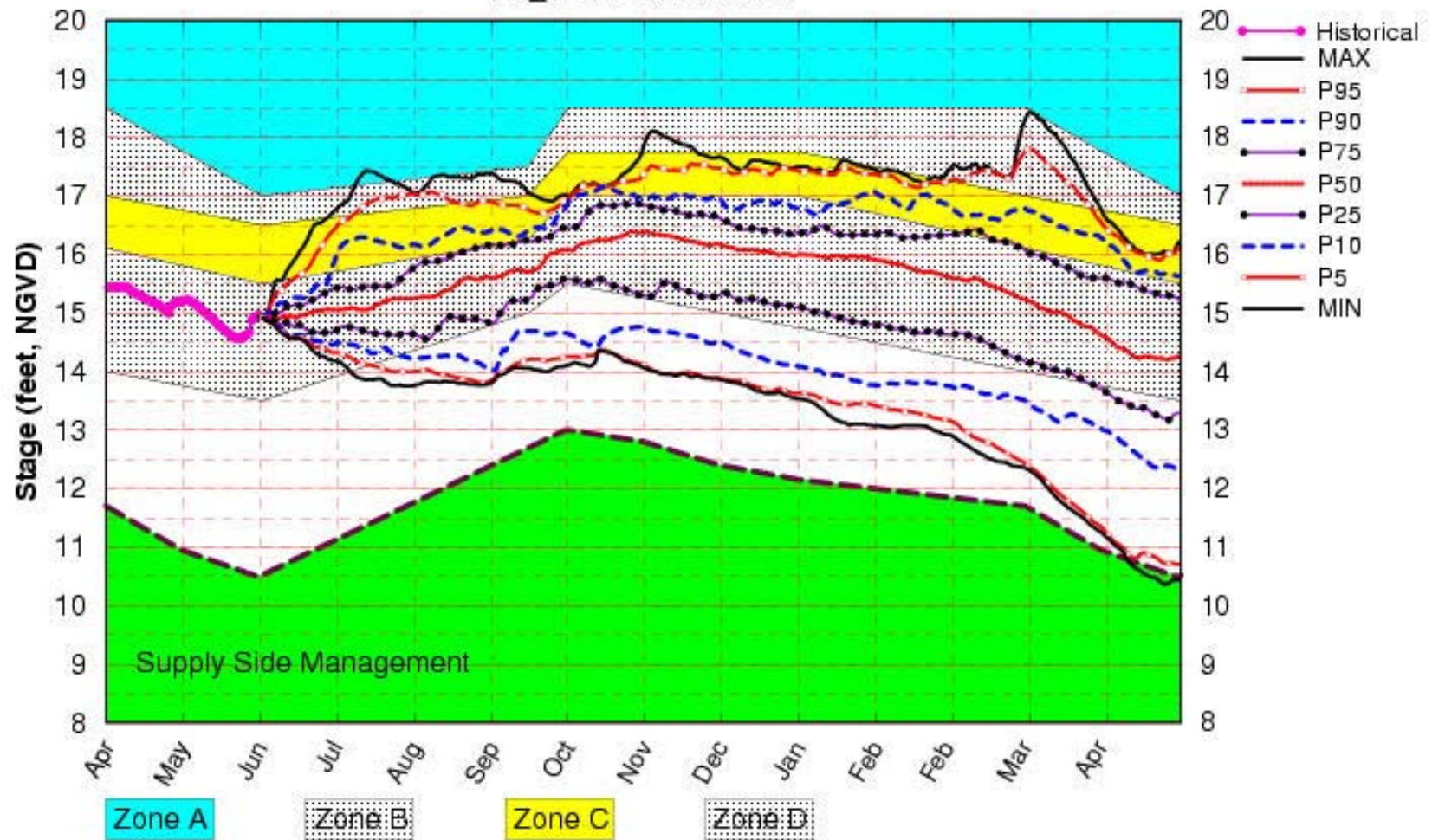
UKISS Unconditional PA



(See assumptions @ [http://www.sfwmd.gov/org/pld/hsm/sfwmm\\_pa.html](http://www.sfwmd.gov/org/pld/hsm/sfwmm_pa.html))

# Lake Okeechobee SFWMM Jun 2003 Position Analysis

PA\_1 Unconditional PA



(See assumptions @ [http://www.sfwmd.gov/org/pld/hsm/sfwmm\\_pa.html](http://www.sfwmd.gov/org/pld/hsm/sfwmm_pa.html))